DELL'S LATITUDE 10 GETS DOWN TO BUSINESS

SONOS' NEW CENTERPIECE OF SOUND

ABLETON PUSHES THE BOUNDARIES OF MIDI CONTROL

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An Inside Look at the Overhaul of Lenovo's Iconic Notebook

Rethinking the ThinkPad

ISSUE 84

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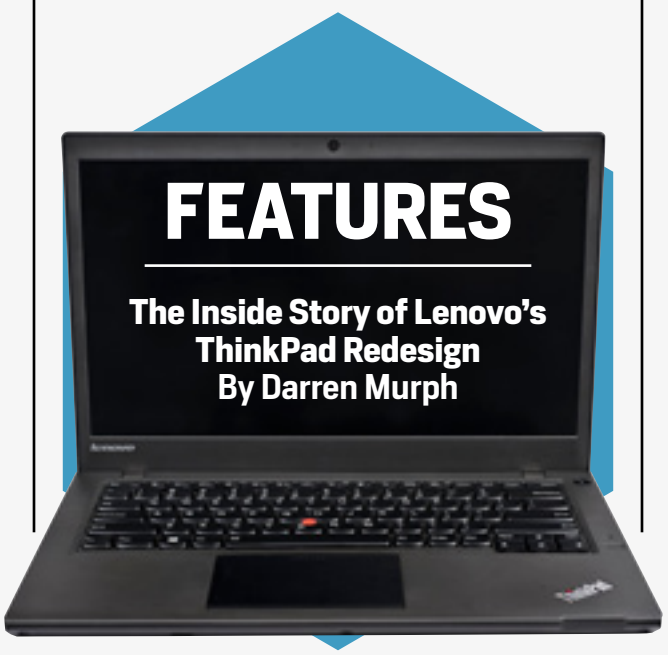

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ESC

On the Cover:
Photograph by Will Lipman for Distro

A NOT-SO SIMPLE CHOICE

DISTRO
03.29.13

EDITOR'S LETTER

AT A RATHER VITRIOLIC (and frequently profane) presentation given to a small group of frequently bemused journalists (myself included), T-Mobile CEO John Legere laid out the company's reinvention. In the interest of keeping things PG I won't repeat the colorful language, but Legere accused the other major carriers of being not only confusing, but also misleading — ignoring the fact that his own company has, for years, enacted the very same policies. No more. It's time for the UnCarrier to step up.

First is a series of contract-free Simple Choice plans, which are similar to those the company offered before. It's $50 for "unlimited talk + text + web" — though the data use is indeed limited to 500MB. Stepping up to truly unlimited everything is $20 more, which is a fair bit cheaper than the biggest plans from competing carriers. But, it's important to note that you'll be paying full price, or near to it, for your smartphone.

Top-tier smartphones, like the BlackBerry Z10 and iPhone 5 (which, yes, T-Mobile is finally going to be selling), will cost just $99. That seems like an amazing deal for a contract-free phone, but there is a catch. That's actually a down payment on an interest-free loan with a repayment rate of $20 a month over the next 24 months. Total cost for the iPhone 5? $579, a fair bit cheaper than the $649 Apple will sell it for. Since you can pay up-front

"Now all the company needs is a proper network, and that's coming soon."

and walk out the door with an unlocked, AT&T-friendly handset for that price, we're thinking T-Mobile might be selling a lot of these.

There is indeed no two-year contract, but if you should stop your service with T-Mobile, you're still on the hook for the rest of the value of that phone. The company will give you a trade-in value for the used device, but it remains to be seen whether the delta between that and the payoff will, on average, be lower than the typical ETF.

I'm giving T-Mobile a bit of a hard time because, despite all the rhetoric, I don't find these plans to be simpler than those of the competition. Still, I like the increased transparency surrounding the pricing of handsets. Now all the company needs is a proper network, and that's coming soon. Seven LTE markets went hot this week, but two of the company's biggest markets — New York City and San Francisco — were notably absent. The network *was* flipped on temporarily in NYC for the event, and we saw healthy speeds in the 20 - 40 Mbps down and 8 - 10 Mbps up range. What they'll look like when the network is properly saturated remains to be seen.

BlackBerry posted its first earnings as, well, BlackBerry. Hot on the heels of the Z10 finally arriving on US shores, the company posted a small profit of $94 million on $2.7 billion of revenue. That the company turned from last quarter's loss to a profit despite reduced revenues shows that Thorsten Heins' drastic cost-cutting measures and restructuring of the entire company are working. It is, however, far too early to gauge the overall consumer reaction to the Z10. We'll wait another quarter for that.

The Game Developers Conference took place in San Francisco this week, and while many eyes were on

EDITOR'S LETTER

"*Sense8* is a 'gripping global tale of minds linked and souls hunted.'"

the OUYA console, which is slated to ship to backers this week, Sony took the opportunity to drop us a few more nuggets of information about the PlayStation 4. Nothing earth-shattering, but, for example, we now know the Blu-ray drive on the unit is three times faster than that in the PS3, the cap of 100 friends on the PlayStation Network is being lifted, the new Eye camera has an integrated tilt sensor and the Remote Play functionality will let you play PS4 games at the Vita's native resolution of 960 x 544.

Netflix, flush with confidence after the rave reviews for *House of Cards*, has gone out and announced its next major property. *Sense8* is a "gripping global tale of minds linked and souls hunted" being developed by the Wachowski siblings of *Matrix* fame and J. Michael Straczynski, creator of *Babylon 5*. I hope certainly that the production values and acting talents lean more toward that former property than the latter one.

In this week's Distro we take you inside the redesign of the latest ThinkPads, examining how Lenovo is carefully and gingerly retooling the classic layout of its keyboard and trackpad to keep up with modern devices without excluding devoted fans. We also have reviews of the Ableton Push, Sonos Playbar and the Dell Latitude 10. Switched On continues the discussion on crowdfunding, Modem World examines the modern malaise and Moog's Amos Gaynes sits down for Q&A. Kick back and enjoy — even if you're still not quite sure how to pronounce "Moog." D

TIM STEVENS
EDITOR–IN–CHIEF,
ENGADGET

VR SKULLSCAPES, PROTOTYPE TRICKS AND MESSING WITH DUCKS

Touch article names to read full threads

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INBOX

VIRTUAL REALITY NOW
ISSUE 83,
MARCH 22ND, 2013

"This is very exciting stuff indeed! I feel like we're on the verge, assisting to a jump in the evolution of computer interaction. Congrats to the OR team!"

—PHILIPPE.LANTEIGNE

"*Doom*, old school... dyin' to see those flaming lost soul skulls coming at me."

—BDEITUR

INSIDE VALVE'S PLAY FOR THE FUTURE OF GAMING
ISSUE 83,
MARCH 22ND, 2013

"VR has been waiting to hit the mainstream since the '90s when [it was] just for computers that ran on 486DX chips. I tried a pair on one day at a store no longer in business called Computer City; that was in 1992. And I have been waiting ever since."

—1TRUEONE55

"I'd like it better if it were on a stand. And only red/black."

—PYRONAUT

SAMSUNG GALAXY S 4 PREVIEW
ISSUE 83,
MARCH 22ND, 2013

"Ah well, I guess the period of innovation has ended. Now we just have to wait for the next great revolution in smartphone design. Until then we'll just be getting stuff like this year after year."

— GEORGIJE

"These days true innovation is huge battery life. My phone is a phone first, email device second; everything else a distant third. Rather than add eye tracking or that video pausing boredom... have a phone that will go DAYS without a charge. Now that is innovation."

— HONESTJERK

"Now I see... why Galaxy IV leaks were so hard to come by. Anytime a reporter or friend would drop by to see their engineer buddy and see a IV prototype lying on his workbench, and they would ecstatically ask, 'Is that the new Galaxy?' The engineer would only say, 'No silly, that's my S 3.' Subject dropped."

— ALLMOBILEMEDIA

THE INTERNET MAY BE KILLING CASH
ISSUE 83,
MARCH 22ND, 2013

"Money is for the poor."

— MACANDRONICUS

ZIPHIUS HANDS-ON
ISSUE 83,
MARCH 22ND, 2013

"Primary use: messing with ducks at the golf course."

— FOREN

"Somehow this thing looks unbelievably cute."

— A A

HIGHER STAKES, HIGHER GROUND FOR CROWDFUNDING: PART 1
ISSUE 83,
MARCH 22ND, 2013

"Anyone putting money into a Kickstarter project expecting a guarantee clearly doesn't understand the concept of crowdfunding. You are funding an idea... if you get something out of it, that should be considered a bonus."

— TEXTFYRE

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EYES-ON

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MOOG SUB PHATTY

PHOTOGRAPHS BY WILL LIPMAN

CLASSIC STYLE, ANALOG TONES

It's no secret that the folks at Moog know a thing or two about analog synthesizers. What's even better is that the instruments they churn out in the North Carolina mountains look stellar. The outfit's latest offering is the Sub Phatty: a gritty-sounding synth that wields all of the craftsmanship and fine detail we've come to expect from Moog.

THE DAMAGE: $1,099

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EYES-ON

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MOOG SUB PHATTY

CONTROL PANEL
The silver control panel sports 31 knobs for fine-tuning tones, and they feel ready to be put to work for the long haul. Up to 16 presets can be accessed via golden-hued buttons.

PHOTOGRAPHS BY WILL LIPMAN

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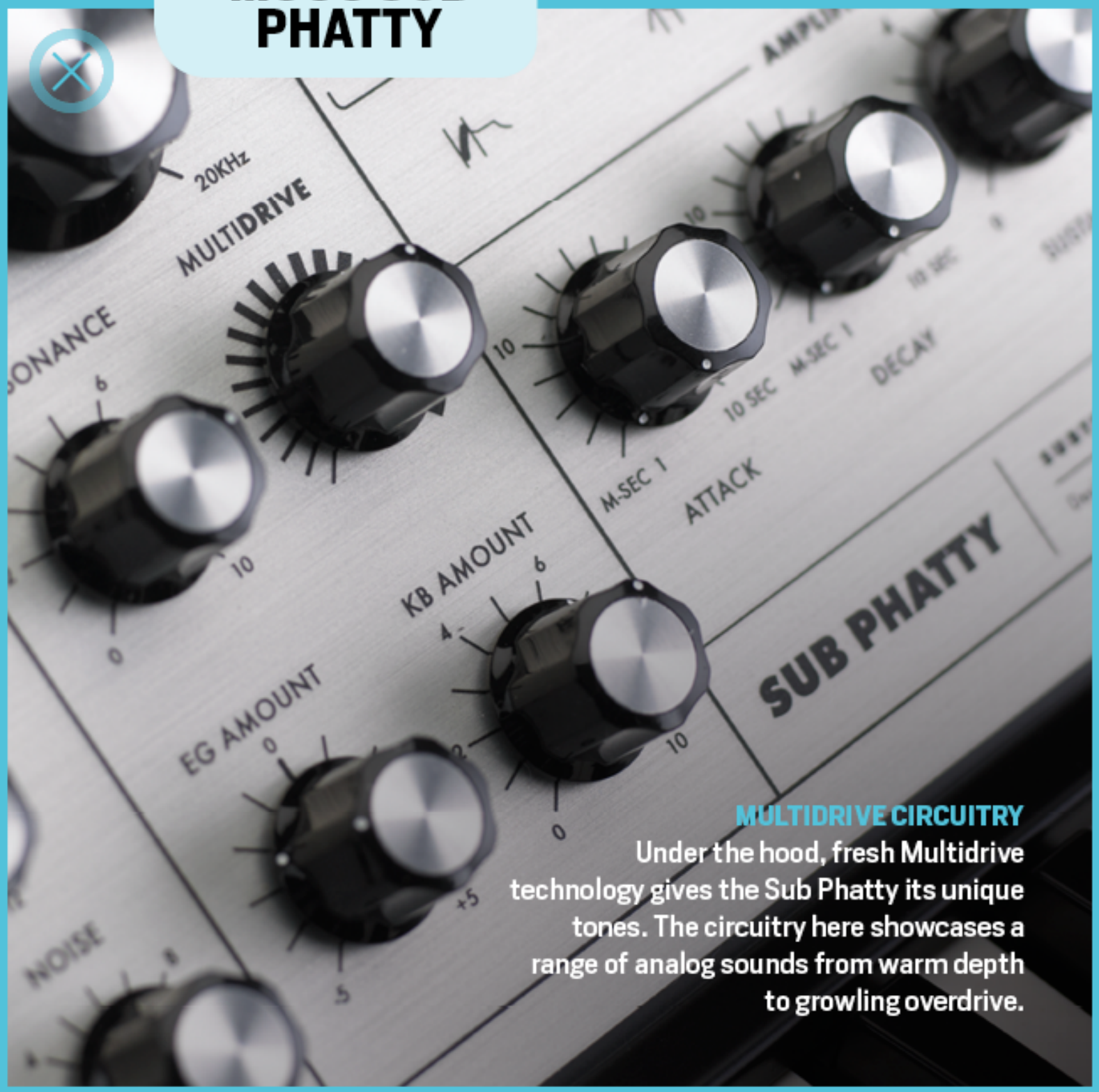
MOOG SUB PHATTY



PHOTOGRAPHS BY WILL LIPMAN

MULTIDRIVE CIRCUITRY
Under the hood, fresh Multidrive technology gives the Sub Phatty its unique tones. The circuitry here showcases a range of analog sounds from warm depth to growling overdrive.

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EYES-ON

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MOOG SUB PHATTY

FINE DETAILS
Solid construction is a byproduct of Moog's workshop-esque factory. Details like the soft-touch side panels — a staple of the Phatty line — enhance the aesthetics here.

PHOTOGRAPHS BY WILL LIPMAN

Click on product names to read full stories

T-MOBILE LTE SPEED TESTS

PRICE: PLANS START AT $50/MONTH

AVAILABILITY: SELECT MARKETS

THE BREAKDOWN: WHILE THE FIGURES VARY WIDELY BETWEEN TESTS, THE NETWORK DELIVERS SOME IMPRESSIVE AVERAGES.

Wondering whether T-Mobile's LTE network has the chops to live up to the "smokin'" adjectives we had thrown our way throughout the UnCarrier event? We certainly were, so we headed right to the suite of devices and got our hands on all the phones we could. Speeds are quite good in general — but interestingly, things did start slowing down as more and more folks fired up Ookla's Speedtest app, doing all they could to test T-Mo's nascent network.

The Samsung Galaxy Note II was first up, and that delivered a very healthy average of 40 Mbps down over three runs, with upload speeds hovering around 25 Mbps. The HTC One came second (sadly, there's no GS 4 to test) and speeds there averaged 25 Mbps down and about 12 up. Finally, we tested two separate iPhone 5s and, interestingly, saw different speeds. The first averaged 26 Mbps down, the second 18 — despite being tested at the same time. Download speeds hovered around 10 Mbps and pings were always very good, typically under 50ms. Of course, how it performs with the crush of thousands of subscribers remains to be seen. T-Mobile CEO John Legere told us the company has plenty of bandwidth and encouraged subscribers to "bring it." That they will, John.

T-MOBILE iPHONE 5

The last of the major US carriers has been granted access to the Cupertino cult, and T-Mobile trotted out the iPhone 5 with a decent amount of fanfare. Well, at least as much as can be mustered for a 6-month-old device. Aesthetically, it's the same handset that's already available from AT&T, Verizon, Sprint and a handful of regional carriers. That means a large swath of fortified glass on the front and a sheet of lovely metal on the rear. The only hint of branding besides Apple is the tiny T-Mobile in the top left-hand corner of the screen.

PRICE: $579 (INCLUDING 24 MONTHLY PAYMENTS)

AVAILABILITY: APRIL 12TH

THE BREAKDOWN: APPLE'S HANDSET GETS OUTFITTED FOR T-MOBILE'S LTE NETWORK AND TACKS ON HD VOICE FOR GOOD MEASURE.

Click on product names to read full stories

The biggest change to the iPhone 5 for T-Mo is the addition of HD Voice capabilities. We were able to give the feature a quick try in a noisy event hall and the results were pretty clear and lacked the tinniness often associated with cellphone calls. Of course, you'll need two devices with HD Voice to take advantage and that's still a pretty small selection of handsets on the market at the moment.

The iPhone did shine on T-Mobile's uncongested LTE network. We ran Speedtest on two separate devices and pulled down an average of about 20 Mbps with peak speeds of 28 Mbps. Upload speeds were a pretty consistent 8 Mbps and ping times stayed under 40ms. By comparison, the Verizon version of the iPhone 5 we had on hand only pulled down about 4 Mbps; upload speeds reached 3.5 Mbps and ping times were consistently north of 60ms. The speed advantages were really clear when attempting a FaceTime call. The Carly-endorsed model produced crisp and clear results when reaching out to a rep stationed in Cupertino, with only minimal artifacts or pixelation.

CANON EOS REBEL SL1 & T5i

Canon's EOS Rebel SL1, is the world's smallest digital SLR. SL stands for "super lightweight," which seems appropriate, given that it tips the scale at just over 14 ounces, yet the camera still accommodates EOS lenses, such as the new EF-S 18-55mm IS STM optic that ships in the box. There's an 18-megapixel APS-C CMOS sensor, DIGIC 5 image processor, a 1.04M-dot fixed touchscreen, a new hybrid autofocus and standard nine-point AF. It offers sensitivity ranging from ISO 100-25,600, can capture 1080p video at 30 / 24 fps and it includes a built-in mono mic, along with a stereo mic input jack on the side.

Click on product names to read full stories

We spent some time with a pre-production SL1, and while we were able to shoot a bit, we weren't permitted to walk away with any sample images. From a performance perspective, the camera seemed quite speedy, with accurate and fast AF both through the viewfinder and in Live View mode. There's a typical assortment of buttons and dials, but due to the reduced footprint, Canon had less room to work with — as a result, things can feel a tiny bit cramped. Despite the size, however, the grip seemed sufficient, and the camera was comfortable to hold.

We also had a chance to check out Canon's new Rebel T5i, which, by the company's own admission, is virtually identical to its predecessor, the T4i. The body finish is slightly different and there's now an option for an 18-55mm STM lens kit, but besides a few mode dial tweaks and some even less significant additions, there's really nothing else to speak of here.

PRICE: $800 & $900 (WITH 18-55MM LENS)

AVAILABILITY: APRIL 2013

THE BREAKDOWN: THE T4i'S FAMILIAR-LOOKING SUCCESSOR JOINS THE WORLD'S SMALLEST DSLR IN CANON'S STABLE.

FORD FUSION ENERGI

Click on product names to read full stories

The Ford Fusion Energi joins the C-MAX Energi and Focus Electric as the company's third vehicle with a charging connector and access to California's HOV lanes. While it's a larger car than the C-MAX Energi, it weighs about the same and features pretty much the same plug-in hybrid powertrain with 195 net horsepower and three EV driving

PRICE: $38,700

AVAILABILITY: NOW AVAILABLE

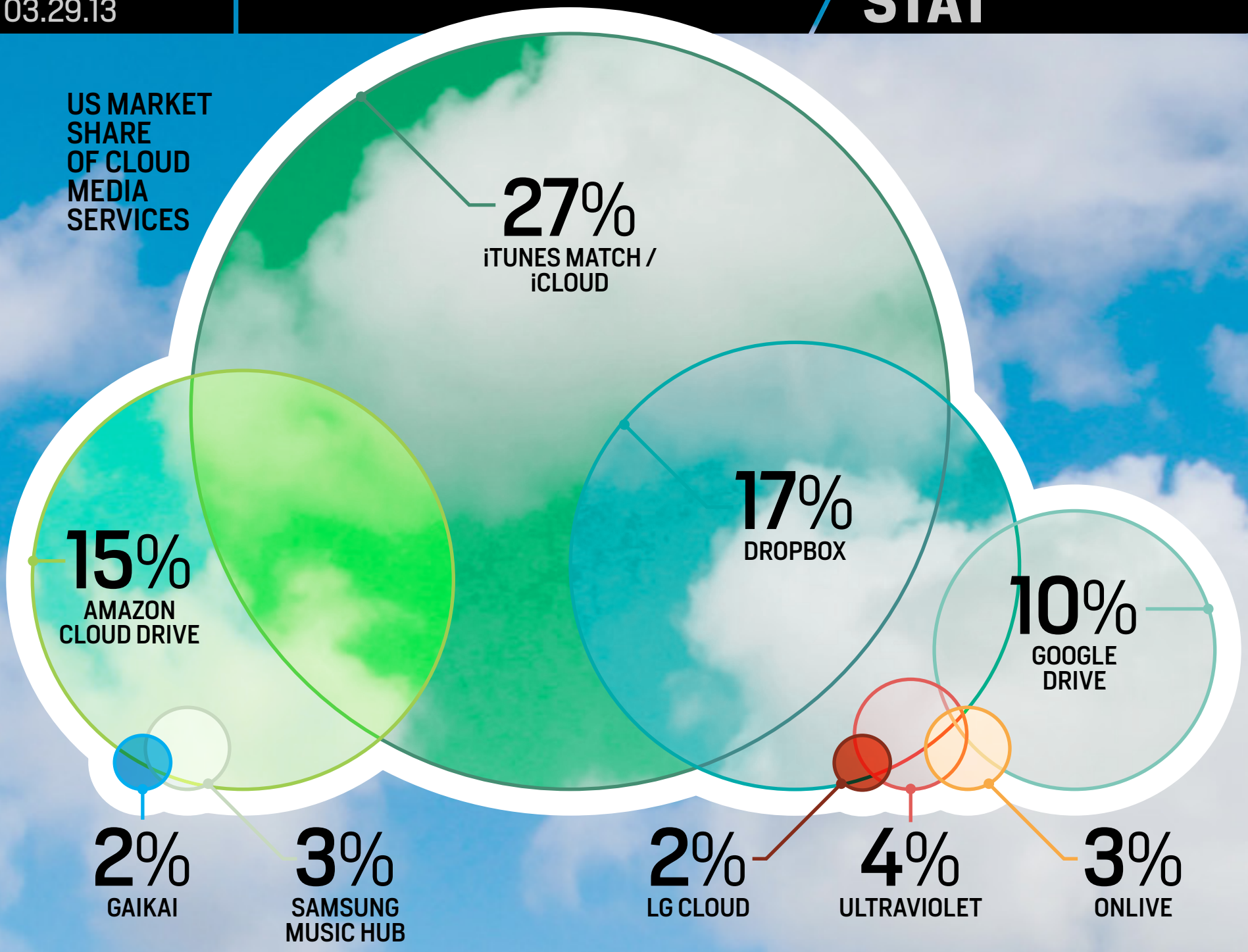
THE BREAKDOWN: DESPITE A LOADED LIST OF SPECS AND TECH, FORD'S NEW PLUG-IN LEAVES US WANTING MORE IN THE PERFORMANCE DEPARTMENT.

modes. It combines a two-liter DOHC 16V Duratec (Atkinson cycle) engine and CVT with an AC synchronous motor powered by a 7.6kWh lithium-ion battery. This pack takes about 2.5 hours to fill up with a 240V charging station and provides a range of 21 miles (100MPGe) at up to 85MPH in all-electric mode. Both autos share the same unfortunate battery protrusion in the trunk area, and while it's less of an issue in the Fusion sedan than the wagon-like C-MAX, it detracts from the overall package.

We took the Fusion Energi for a spin on the rainy streets of San Francisco, and it was a pleasant experience despite the downtown traffic and subpar weather. While we were impressed with the Focus Electric's excellent driving dynamics, we were disappointed with the C-MAX Energi's vague steering and soft handling (this despite sharing the same platform as the Focus). The Fusion Energi splits the difference: it's not as playful as the Focus Electric, but it's far more engaging than the appliance-like C-MAX Energi. Handling is confident, with a compliant ride even on San Francisco's famously rutted streets — it's clearly a vehicle that would be comfortable on longer trips. The steering feels precise and the brakes are drama-free.

We were less enamored with the powertrain. In the all-electric EV Now mode, the accelerator only responds to the first one-third of pedal travel. Beyond the initial surge of torque, the car slowly builds up momentum regardless of any further throttle input. Mash the pedal in Auto EV mode and, after the electric motor pulls you off the line, there's a brief delay before the gasoline engine comes to life and the CVT raises the RPMs to maximize efficiency. The resulting soundtrack is loud and buzzy and betrays the vehicle's overall refinement. EV Later mode provides less electric assistance as it attempts to conserve battery power.

Ford's outfitted the Fusion Energi with a dizzying array of driver-assist tech, including a lane-keeping system, adaptive cruise control, driver alert system, active park assist, rear camera, blind-spot indicator system with cross-traffic alert and pull-drift compensation (phew). It also features a Sony- and Microsoft-branded Sync with MyFord Touch infotainment system and an AT&T-powered wireless data connection for telematics. Speaking of which, the MyFord Mobile app's recently been updated to benefit from the company's partnership with PlugShare for real-time charging station location information. D



The Cloud with a Data Lining

We often focus on market share for hardware, but cloud media services increasingly dictate our lives. So who rules the online media landscape? According to Strategy Analytics' just-published study from the fall, Apple's iCloud and iTunes Match are top dogs in the US at a combined 27 percent of usage — a not entirely surprising lead when Apple has pushed hard on iCloud's media syncing since iOS 5, and has large swaths of market share in MP3 players and tablets, not just smartphones. There's a considerably tougher fight involved for just about everyone else, however, including Google. Dropbox and Amazon Cloud Drive are almost neck and neck at 17 and 15 percent, respectively, while Google Drive holds just 10 percent. Music is clearly the driving force, Strategy Analytics says: when audio represents 45 percent of the content on a generic platform like Dropbox, companies ignore tunes at their own peril. — *Jon Fingas*

SOURCE: STRATEGY ANALYTICS / PHOTOGRAPH COURTESY OF SXC.HU

IMAGE COURTESY OF MICROSOFT STUDIOS / EPIC GAMES

On Video Games and Storytelling: An Interview with Tom Bissell

By Maria Bustillos
The New Yorker

Video games as art is one topic that's always guaranteed to stir up a discussion, and this interview with *Gears of War* writer Tom Bissell from Maria Bustillos is no exception. Rather than tackling that issue broadly, though, it focuses on one aspect of particular concern to Bissell: storytelling. For that, Bustillos first goes back to her own fond memories of text adventures like *The Hitchhiker's Guide to the Galaxy*, before moving on to Bissell's own work on *Gears of War* and what he sees as strong examples that push the form forward — *The Walking Dead* and Jonathan Blow's forthcoming *The Witness* are two cited.

Click on headlines to read full stories

The Nielsen Family is Dead
By Tom Vanderbilt, *Wired*
Changes in TV-viewing habits due to internet streaming services and other options have forced many companies to make some serious adjustments, and the ever-present Nielsen Company is certainly no exception. In this cover story for *Wired*, Tom Vanderbilt looks at how Nielsen, networks and advertisers are changing along with those viewers.

Inside Manhattan's Tower of Internet
By Alex Carp, *The Awl*
The internet isn't often thought of in terms of physical buildings and places, but writer Andrew Blum went some way towards changing that with his recent book on the subject, *Tubes*. Here, *The Awl's* Alex Carp talks to Blum about some changes afoot at one of those: Manhattan's New York Telephone Company building, built in 1975.

When the Whole World Has Drones
By Kristin Roberts
The National Journal
There's been plenty of talk about the United States' use of drones lately, but it doesn't take a great deal of prognostication to see that their use by other countries will also grow considerably in the years ahead. That's the scenario that Kristin Roberts tackles here, looking at some of the many potential consequences that could result from the precedents now set.

The Bacon-Wrapped Economy
By Ellen Cushing
East Bay Express
San Francisco was at the center of the dotcom boom and bust more than a decade ago, and the years since have seen their own share of changes that have made their mark on the city. In this piece for the *East Bay Express*, Ellen Cushing looks at how some of those changes have taken shape and affected both the culture and economy of the city and greater Bay Area — often not for the better.

Let's Go Places

#LetsGoPlaces And celebrate when we get there.

TOYOTA | Let's Go Places

HIGHER STAKES, HIGHER GROUND FOR CROWDFUNDING: PART 2

BY ROSS RUBIN

LAST WEEK'S SWITCHED ON discussed the issues around crowdfunding liability, offering examples of some recent tech projects that delivered late or inconsistently, and explaining the justification for sites such as Kickstarter and Indiegogo denying accountability. Given this, there are a few options in how consumers choose to engage with crowdfunding sites.

One option, of course, is to accept their positioning. Understand that, when you pledge funds with the promise of a reward that may include the product you are backing, you are assuming risk. All Kickstarter project pages must now include a section that describes some of the risk factors in bringing the project to market although these descriptions fluctuate in how forthcoming they are. Project backers vary widely in their experience and all projects have some risk of not coming to market.

A second option is, if not avoiding crowdfunding sites altogether, at least waiting until the products they've spawned hit channels where there is more accountability. Crowdfunding sites have been fertile grounds for incubating new categories such as smartwatches (and overly fertile grounds for things such as minimalist wallets). As these products become

available to the broader public after the initial backers, you may be able to purchase from a party that will offer you a refund if a product arrives late or not at all. Once products are offered via web sites of physical locations that consider themselves stores — or even an eBay storefront or auction — there may be more recourse.

One crowdfunding site is directly taking on the onus of consumer protection, in large part by focusing on the feasibility of — and note this word — inventions. Christie Street was borne of frustration when the founders' Kickstarter project, a charging station for iPhones and other gadgets called Pop, was coming to market just as Apple was transitioning to the Lightning connector. The project owners thought they might need to find a way to give the money back and found there was no easy way to do so through Kickstarter. (Pop wound up moving forward as designed and is now available for pre-order.)

Founder James Siminoff describes Christie Street as a store, but one that does not sell pre-made products. Products sold through Christie Street go through a rigorous technical analysis to determine if they can be made at all, and for how much. Christie Street will not allow a product that needs $250,000 in funding to float a $50,000 campaign. Addressing Kickstarter's assertion that the goal of the crowdfunding site is to allow backers to assess risk, Siminoff notes, "My mom is one of the people buying it. She doesn't understand if it can be made or not. The crowd can't determine that."

And that's just the beginning. Funds collected are dispersed to the inventors from an escrow account and are generally paid out a third at a time as certain milestones are reached. Factories are screened to make sure there are no child-labor abuses. But despite all the oversight, Christie Street has few rules about the kinds of inventions it will accept. Unlike with Kickstarter, household items are allowed. About the only two restrictions are food and firearms. The site will even allow consumers to purchase "insurance" on the product they're backing, which will ensure a refund even if things go wrong despite all the protective measures.

Crowd Supply is another site that combines, but also draws distinctions among crowdfunding, pre-orders and sales, allowing more cautious early adopters to cancel pre-orders if they don't like the direction a product is taking. Like Christie Street, it has few rules about the kinds of products it will accept; co-founder Lou Doctor calls it, "Kickstarter for capitalists," and agrees with Siminoff that crowdfunding for technical products entails different requirements versus artistic products: "It's like oil and water, red

"Christie Street has few rules about the kinds of inventions it will accept."

TYLT's Energi: a gadget-charging backpack.

states and blue states. They just don't mix." Crowd Supply also helps product creators bring their ideas to market by working with a network of rated service providers and sets expectations about delivery by adjusting delivery dates depending on when pre-orders come in.

Crowd Supply currently has about 12 projects on its site, including an artistic food magazine. Many are in early funding stages although a couple are shipping. At Christie Street, without Kickstarter's traffic and resulting network effect, projects have had a mixed record out of the gate. Siminoff's own project, DoorBot, reached its goal, but only after the team kicked in money to get it over the hump. The one open project currently on the site, an earphone cord organizer called Kordl, has attracted less than $1,000 of the $25,000 sought with about two weeks to go in the campaign.

At CES, Christie Street and established accessory maker TYLT showed off a backpack called Energi with integrated gadget-battery charging. However, that product is now seeking consumer contributions on Kickstarter where it's closing in on its $50,000 goal. There don't seem to be any hard feelings on Siminoff's part; he's a backer. D

PHOTOGRAPH COURTESY OF TYLT / TECHNOCEL

NERDS IN RABBIT HOLES

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03.29.13

FORUM

THIS IS THE MODEM WORLD

BY JOSHUA FRUHLINGER

I HAVE MANY INTERESTS: mountain biking, martial arts, video games, running, reading, cooking and horror movies. For each one of these, there is an internet rabbit hole so deep, so full of information and compatriots that it's a miracle I ever actually follow through on them. Ask yourself this: Do you do what you say you do online?

The internet is great at allowing people to nerd out on their particular interests. While it serves up news and media like a champ, many of us spend our time deep-diving into whatever rabbit hole interests us. When we nerd out about technology here at Engadget, for instance, we're getting a double dose: reading about technology in a tech environment. It's a beautiful thing; it's addictive and we lose sight of reality while we're going deep. We could be in a bar, at home, at the office — wherever it is, we lose sense of our environment.

When it comes to my latest online rabbit hole — mountain biking — I can spend hours dreaming via the bits and bytes of others. I can watch helmet-cam videos of riders bombing down local trails I can't wait to ride. I can read technical tips from more-skilled riders. I can download trail maps and order 1,200-lumen LED night lights straight from China. I can talk myself into thinking I need a new carbon frame when my current one doesn't even have 1,000 miles on it yet.

"I'm going for a ride. No, really. I am. After I read this post about cornering."

That sense of community and like-mindedness for our unusual interests is, without a doubt, the single most addictive facet of the internet. Want to discuss your love for cartography? There's a community out there. Even if you're into *My Little Pony* when you are arguably too old to be, you'll find legions of Bronies in a well-lit corner of the 'net, and every single one of them is willing to accept you for who you are. Years ago, you'd be a sad, lonely individual collecting action figures in the corner of McDonalds, but now… now you have friends.

In most cases, this is a great thing. Healthy people need like-minded people who make them feel as though they're not alone. That sense of "I'm not as weird as I thought I was" is a major relief and, in the end, it's really fun as long as you're not hurting anyone.

But what happens when we spend more time talking online about the things we love than actually doing them? In my mountain-biking case, while I'm engaging in a silly online argument regarding the pros and cons of using clipless pedals, I sometimes pause to wonder why I'm discussing riding online when I could be outside actually doing the thing I'm discussing. Sure, sometimes it's because the clock reads 2 AM and I shouldn't be out when the monsters are roaming the trails. Other times, it's because I'm working. But sometimes there's no reason at all — I'm sometimes nerding out about mountain biking when I could be out there doing it.

It's these online rabbit holes that we often find ourselves in, unable to separate the mental space from the actual act. Whether we're following a chain of videos on YouTube into cringe-worthy obscurity or pounding the keyboard in defense of our favorite tech company, we sometimes go too deep.

And then one has to wonder if the ubiquity of online communities allows us to take on an interest without actually engaging in said interest. I know that on some days — especially those between Monday and Friday — I am guilty of spending more time talking online about my interests than I do actually following through on them.

Sure, I may come out the other side perfectly fine and loaded with new information for my next ride, happy to have met new compatriots. But maybe, just maybe, I forget to actually do what I've been talking about the whole time.

I'm going for a ride. No, really. I am. After I read this post about cornering.

REVIEW

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REVIEW

ABLETON PUSH

Will Ableton make a sonic splash in the MIDI market with its Live-optimized Push controller?

By James Trew

MIDI might be a little long in the tooth as protocols go, but it's been the prevailing standard for getting music hardware and software to play nice pretty much since its inception. As such, the MIDI controller is a fairly established staple in professional and bedroom studios alike. The problem is they're generic by nature. They come in all shapes and sizes, but to be profitable, they need to appeal to a broad range of applications. Ableton clearly didn't think this arrangement was up to snuff, though, so it created Push — a software controller built entirely for its pop-

ular Live production software. While there have been Live-specific controllers before — some even officially endorsed by Ableton — Push is a whole new beast. It's one that hopes to unite hardware and software in a way that an all-purpose controller never could.

Ableton also has lofty musical ambitions for Push: it claims it designed the hardware as an instrument in and of itself; something that lets you close the lid of the laptop and use to make music with, while not looking like you are checking your email. And, given that Ableton makes the software that it's building Push for, integration is understandably expected to be airtight. But how well does it work? Is it an instrument? Will it replace all your other controllers? Do you want one? Is it worth the $599 pre-order price? Will it blend? We've pushed ourselves to explore the device fully in an effort to find out (apart from that last question, of course).

HARDWARE

We already alluded to the fact that there are a myriad of MIDI controllers in all shapes and sizes, but there are two in particular that are worth knowing about before we go on for context — Novation's Launchpad and Akai's APC40. Both

> There aren't many mass-produced controllers that feel and look as well-crafted as this.

are Ableton-specific controllers, which arguably have at least in some way influenced the Push we're evaluating today. With those fresh in our memories, let's look at Ableton's spin on things.

Remove Push from the box, and the first thing that strikes you is how dense it is. The square device measures 14.5 x 11.5 x 1 inch, and weighs 6.6 pounds. The weight falls very much into the "reassuringly heavy" category, though if you're a fan of lighter units such as the Launchpad, it might initially feel a little cumbersome. Bar a few connections around the

Push is tailor-made for Ableton's popular Live software.

back, all the action can be found along the top surface. A large 8 x 8 grid of white rubber pads takes center stage, flanked on the left and right by smaller black buttons with a different, harder, plastic feel than the central white ones. Above the central grid are another two rows of smaller buttons, an LCD display and nine rotary controllers. On the left side, there's also a touch-strip between the center pads and the black control buttons. Overall, the finish of the casing feels great, and is of the soft-touch variety — similar to that found on many phones and tablets.

The pads in the central grid are pressure-sensitive (how hard you push affects the sound) and feel extremely firm / mashable, with only a small amount of travel. The black buttons on either side, however, are slightly looser and have more of a "clicking" action. All the rotaries are endless (you can twist them forever), and are entirely smooth in their motion, bar one, which has a notched action to allow easy setting of fixed values. None of them are clickable, as is sometimes the case, but they're touch-sensitive up top, which adds extra functionality. Those other ports we mentioned earlier all sit along the rear of the device, and include a brushed-metal power button, a 6V DC input (adapter included), a USB port and two 1/4-inch jacks for pedals.

We have to say that we've handled more than our fair share of MIDI gear, and there aren't many mass-produced controllers that feel and look as well-crafted as this. The design is very much in keeping with Ableton's approach in the software realm, and has a very strong sense of minimalist aesthetic simplicity. This, combined with the quality of the build, really does make it an object to behold. It gets as close to some of the more bespoke or niche controllers (anything from Livid, or Monome) as we've ever seen in a mainstream device. It's worth noting, too, that the hardware has been produced in partnership with Akai, so not only is there some heritage in those pads, but it's been built by the company that effectively makes a competing (albeit older) option.

SOFTWARE / HARDWARE INTERACTION

The launch of Push coincides with the long-awaited arrival of Ableton Live 9. While we're not going to go too far into the software side of things from a review standpoint, it's important to explore how well Push does its job — which ultimately is letting you control the software. There will be some assumption of basic knowledge of Live, as most people interested in buying are probably using it already. We'll start with the two main views in Live — Arrange and Session. Push is almost entirely interested in Session view. Within this part of Ableton Live, there are broadly two things you will want to do: create new clips of music, and play / trigger these clips in a musical, ordered

Push's LCD display and the pressure-sensitive pad layout.

fashion. Push lets you do both of these tasks, and we'll approach both separately.

Connect Push to your computer (via USB, no drivers, etc. required), open Ableton Live and the device springs to life. The previously unlit pads display vibrant colors, and the LCD screen lets you know that Ableton is asking you a question. That question is "Would you like to start a new song?" Clicking "Yes" will automatically drop Push into drum-machine mode, having loaded up some default instruments in the software automatically.

In this state, the 8 x 8 grid divides itself in three. The bottom-left 4 x 4 pads represent drum sounds (touch the slider to scroll up and down through even more sounds), while the bottom-right quarter of the grid serves as a clip-length control (press and hold the first pad, tap the fourth for a four-bar loop, etc.). The remaining 8 x 4 pads above now function as a step-sequencer — with a sound selected, tapping these adds drum hits in the respective position in the drum loop.

This is intended to serve as your starting point for a new song, letting you lay down a rhythm straight away. Push lets you add drum hits by tapping the pads on and off as the loop plays,

but you can also record a pattern in live if you're a bit of a finger-drummer. This is where we break out onto the outer black buttons, which (among other things) contain controls for quantize, delete and — thankfully for us — undo.

So, you've got a little drumbeat going and you'd like to spice it up with a melody. No problem, says Push. The top-right cluster of black buttons lets you change focus between clips, devices, tracks and so on. Ableton will have automatically loaded a pitched instrument in the software, and making this the center of Push's attention is just a button click (or two) away. It will depend on what you were doing last, but the black controls helpfully light up when they are useful, and remain dim when they are not. The LCD display also shows the current function of the buttons directly below it, which, in the current state, means switching between tracks in our project. With our pitched instrument selected, the grid on Push changes from the step-sequencer view into its method of notational input.

To achieve this, the pads essentially become piano keys, the arrangement of which can be heavily configured to your preference. A scale button lets you change the musical key and whether it's minor or major (or a host of other exotic scales). You can also change the grid to represent either only those notes in the key you have selected (never play a wrong note!), or to offer all the notes chromatically. This is where it tackles a significant challenge: allowing experienced musicians and one-finger wonders alike to "play" it as an instrument. Again, without drifting off into theory too much, the way the pads represent notes has been arranged so that you can rattle off scales, chords, etc. if you so wish. It can also provide gentle guidance to those who are perhaps a little more used to drawing in their MIDI notes one by one with a mouse.

So, you've got a little drumbeat going and you'd like to spice it up with a melody. No problem, says Push.

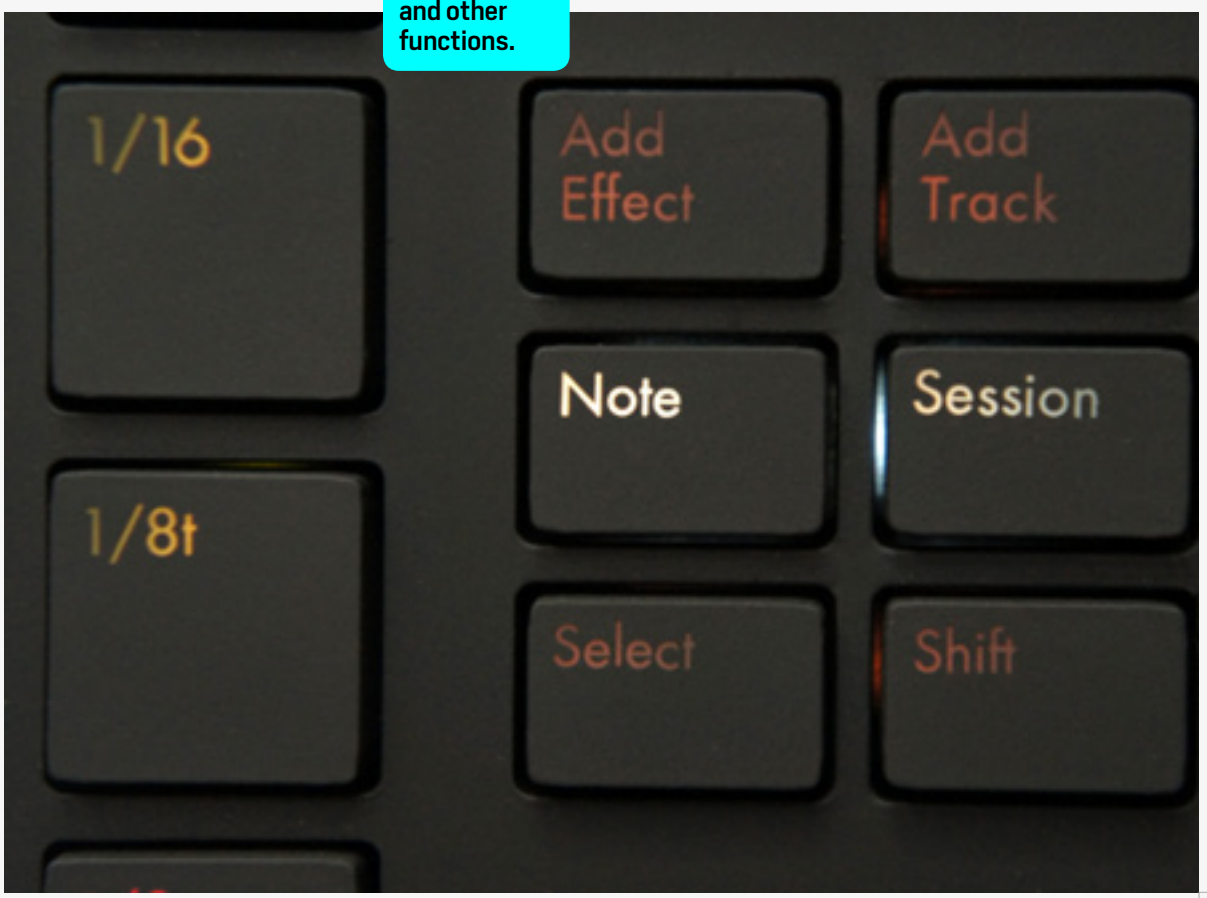
While there's much more to explore for each of the above two instrument styles, the other main mode of operation is as a clip launcher. This is akin to the most basic function of Novation's Launchpad, whereby the 8 x 8 grid represents a corresponding section of your project. In this mode, one pad represents a MIDI or audio clip, which will start to play when pressed. Again, like the Launchpad, you can set off whole "scenes" (or rows) of clips easily with the corresponding black button to the left. There is a four-way navigational pad in the lower-right corner of Push, and this can be used to move the 8 x 8 grid's focus around your session. If you have a really large project, with hundreds of clips, pressing (and holding)

shift will present a zoomed-out view, where each pad now represents an 8 x 8 section of a project, letting you quickly jump about to different parts of the session. Feature-wise in this mode, things are pretty straightforward, and a well-constructed project can be navigated and performed with ease. So, while you might be more interested in performance or production with Push, in reality, the two tasks can also be combined somewhat seamlessly, which is quite the exciting prospect if you've so far been using multiple devices to achieve something similar.

IN USE

In general, and if you know the software, most of the controls feel intuitive. But, if like us, you want to explore what *everything* does *right now* without reading the manual, it can be a little frustrating on the first go. We'll admit that our first five minutes with Push weren't quite as straightforward as we'd hoped. Creating clips of drums and melodies was simple enough, but figuring out only slightly more advanced actions — such as duplicating a clip, or trying to add a plug-in / third-party instrument — had us jumping back and forth between modes looking for the right button. This is likely more down to our enthusiasm, wanting to be experts right off the bat. The second session with Push felt a lot more natural, and intuitive. Fortunately, it doesn't matter how much you know about Live, as there is adequate documentation to get you going

> Rhythms and melodies can be played expressively, and experimental ideas (and happy accidents) suddenly become easier and more frequent.



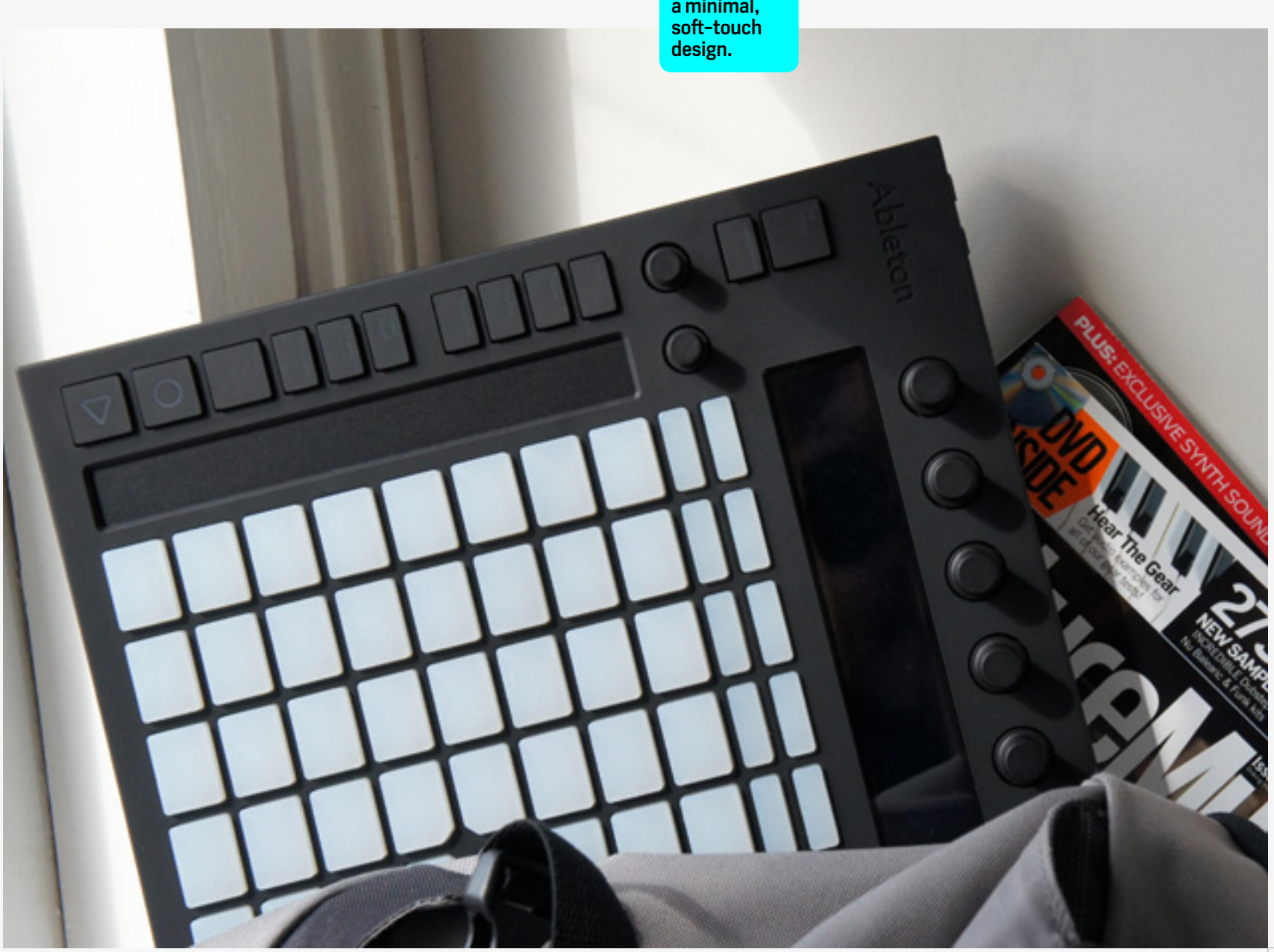
The black keys adjust quantization and other functions.

no matter how patient you are (or in our case... not).

Once the workflow clicks, however, the fun really begins. The difference a MIDI controller makes to your creative workflow is already significant. So having one that's purposely built for the software it is controlling only serves to ramp up that sense of using a hardware instrument, rather than a virtual one. Rhythms and melodies can be played expressively, and experimental ideas (and happy accidents) suddenly become easier and more frequent. Ableton Live already had a reputation for allowing you to get ideas down quickly, and Push really does expedite that process even more. This, for us, is its strongest suit. There are small concessions being made. For example, keyboard players might prefer a regular piano interface, and drummers may like bigger pads, etc., but Push still manages to deliver all of that functionality in just one device, and does an honorable job, at that. But it's definitely the sparking of new ideas that really makes this worth a look. If you regularly find yourself wheeling out the same patterns, Push might be just the creative kick you need.

It's also worth noting

Push is wrapped in a minimal, soft-touch design.



that you have to commit to a certain amount of preparation first. If, like a great number of users, you're interested in using Ableton Live with third-party plug-ins, things understandably aren't as native as they are with Live's built-in instruments. You can work around this by creating instrument racks, and allocating macro controls to the most important features of your instrument. Live will even display whatever you choose to label it on Push's readout. This is great, but it means when you are creating a new MIDI track, and browsing for instruments, that you can only add those from Live's suite, or instrument racks you've created as previously described. Given that Ableton has no control over third-party instruments, it seems a little unfair to mark it down for this. But on the flip side, you'll likely find yourself organizing your library, instruments and sounds in a new way to accommodate Push, and the side effect is that your whole workflow will benefit, even if you might be doing it reluctantly.

As we've established, asking Push to be able to do everything for everyone right out of the box is a big request. But, with a user mode that lets you map your own configuration and Max for Live, there's a very good chance that the community at large might fill in many of the blanks in short order. Perhaps this is something Ableton considered when deciding where Push's competencies should lie.

WRAP-UP

If you want something that will bring every function, option and submenu of Ableton Live within physical reach, then you're likely asking far too much of any software controller. If, however, you want a device that makes Live feel more like dedicated hardware, then this goes a long way to achieving that.

When used with Live, Push is a complete, powerful kit.

But, is it for everyone? Well, that's a hard question. Making music — especially in the digital realm — is a very personal affair. There aren't any best practices as far as workflows go. What Push does, though, is bring Live out from the screen and under your fingers in a way that not many other controllers can match (in terms of 1:1 function mapping).

As always, there are trade-offs, with one of the biggest being that there aren't nearly as many controls for audio as there are for MIDI. If you were perhaps thinking about using this to record audio on the fly, loop things up and build a track that way, then you might want to try one out for yourself first, or adapt your workflow to make this fit. There's no doubt you would be able to configure it with the User mode to do all of those things, but it's not really part of the native workflow a device like this sells itself upon. The User mode is a great catchall feature, but it's there to make up for all the functions that Ableton didn't give a fixed amount of hardware resources to.

Above and beyond all of that, Push is immense fun, and will likely provide a creative jab in the arm to almost any Live user no matter what their usual workflow is. And, to be fair, whether you're a jobbing, aspiring or recovering musician, that's pretty much the best "feature" you can ask for. If you're completely new to Ableton Live, the $1,198 asking price for Push and Live 9 Suite ($948 for Live Standard) might be a big chunk of change. Existing users can pre-order the hardware by itself for $599, which, while not unreasonable, is a price that would get you both its nearest competitors with change leftover. This will no doubt be the biggest source of user debate, but we're pretty sure once you actually laid hands on it, there's a good chance you might find yourself justifying the cost. After all, you can't put a price on creativity, can you? D

James loves music and technology, especially music technology, particularly when he gets to write about it. Figures really.

BOTTOMLINE

ABLETON PUSH

$599

PROS

- Intuitive tactile controls
- Excellent build quality
- Suits all skill levels

CONS

- More audio controls needed
- Less affordable than other solutions

BOTTOMLINE

A great debut controller from Ableton that makes efficient use of a modest footprint. More controls for audio would be nice, but there's definitely something for all levels of users.

REVIEW

SONOS PLAYBAR

Does the Sonos Playbar pack enough punch to be your entertainment center's audio all-in-one?

By Michael Gorman

Sonos has found a sweet spot in the audio world. Its wireless technology and ability to stream music from almost any source — be it from the cloud or local storage — have given it considerable geek cred, yet its simple setup still offers mass appeal. Of course, none of that would matter if its systems didn't sound good, but fortunately, Sonos' Play:3, Play:5 and its Sub have all impressed with the quality of audio they produce. The $699 Playbar is the newest member of the family, and with this product, Sonos is setting its sights squarely on the home theater mar-

ket. Is it fit for your living room? Read on to find out.

HARDWARE AND SETUP

The Playbar is a handsome, if understated piece of equipment. At 3.35 x 35.43 x 5.51 inches (85 x 900 x 140mm) in size, you'll have no problem fitting it beneath your flat-screen. Indeed, we used it with both a 42- and 47-inch TV, and found the dimensions appropriate in either case. Its exterior is sheathed in black speaker cloth, and has a pewter-colored insert comprising the lengthwise edge on either side of the bar. A pair of matching inset bands rings the mesh grilles on each end — an echo of the design language of the Sub — with the Sonos-standard volume toggle, mute button and an LED power light on the right side. The long metal edges are made of extruded aluminum, and the wider of the two makes room for both an inlaid IR receiver and IR repeater strip, along with a notch cut out on the underside for the power, two Ethernet jacks and a Toslink port. Build quality is excellent — the openings are pretty uniform and we couldn't find any visual blemishes on our review unit either.

Aside from providing a nice bit of visual contrast and a place for some minimal Sonos branding, the larger aluminum edge serves as a heat sink for the nine drivers that pump out sound. There are six 8-centimeter (3.15-inch) aluminum cone mids powered by neodymium magnets, and three 2.5-centimeter (1-inch) ti-

The size works well for 42- to 47-inch TV setups.

tanium dome tweeters, and each speaker has its own digital amp. The speakers are mounted in a super-rigid, sealed plastic enclosure at a 45-degree angle, and it's that angular sweet spot that's key to providing good acoustic imaging whether the Playbar is mounted on the wall or lying flat on a TV cabinet. Of course, the accelerometer and 800Mhz PowerPC CPU inside also work in tandem to determine the Playbar's orientation and tweak the EQ accordingly to ensure that imaging is perfect.

It's not exactly groundbreaking industrial design, but it does have a bit more panache than your average soundbar. Put it this way: it'll fit in with just about any décor, but it's distinctive enough that astute visitors will likely notice and ask about it — or at least that was our experience while testing it out.

Manual controls are available for the basics, like volume.

Sonos prides itself on the fact that its systems are simple to install, and the Playbar is no exception. To test that ease of installation, I asked my not-so-tech-savvy girlfriend to hook up the Playbar and a Sonos Bridge, and she had it wired up in less than five minutes. Just plug in the power cord and the Toslink cable to the Playbar, then connect the other end of the optical cable to your TV or other audio source and you're good to go.

> Such simplicity of operation is often difficult to execute, but the boffins at Sonos have made pairing an IR remote about as easy as it can be.

After that, the Playbar prompts you to hit the volume-up button on your TV remote, which allows it to find the proper IR code. From then on, your remote should be able to control the volume on the Playbar. Also, in the event the Playbar doesn't recognize your

remote straight away, the Sonos software will walk you through hitting the volume toggle and the mute buttons so that it can learn the correct code and add it to the list on Sonos' servers. That way, future customers won't have to go through those additional steps. That's just one other bit of engineering genius from the Sonos folks. Such simplicity of operation is often difficult to execute, but the boffins at Sonos have made pairing an IR remote about as easy as it can be.

We did hit a slight snag in trying to pair the Playbar and Bridge, despite the Sonos Controller software's clear and easy-to-follow instructions. However, moving the Bridge a bit farther from our router and a quick reset of said router remedied the issue. Then it was simply a matter of hitting the join button on the Bridge and the mute and volume-up button on the Playbar, and we were up and running in short order. Once connected, it took about 10 minutes to index the 40GB of music we had on our external hard drive connected via USB, during which time we entered the login info for our streaming services. All told, we went from unboxing to blasting Blind Melon in less than half an hour.

A quick note about our setup. We were forced to connect the Playbar directly to a set-top box because our particular flat-screen's optical-out doesn't switch on when set to an HDMI input. Without the ability to pull audio from whatever was playing on our TV, we had to swap connections between our PS3 and our satellite TV box if we wanted the Sonos' simulated surround sound on either. An inconvenience, to be sure, and something that runs counter to Sonos' simplicity of use ethos. Of course, this shouldn't pose a problem for users who own TV sets without such a limitation, but it's certainly something to consider before spending $700 on a Playbar.

SOFTWARE

We've covered both the Sonos desktop and mobile Controller apps in our previous Sonos reviews, and the user experience remains unchanged since their overhaul a year ago. There are three panes of controls for bigger screens: the leftmost shows all your connected Sonos speakers, the middle displays a queue of tracks and what's currently playing on a selected speaker and the right window displays your available audio sources. At the top are the volume, EQ, play / pause and track controls, as well as a universal search-as-you-type field. There are also buttons for clearing your current queue or saving it as a playlist, plus sleep timer and alarm settings at the bottom.

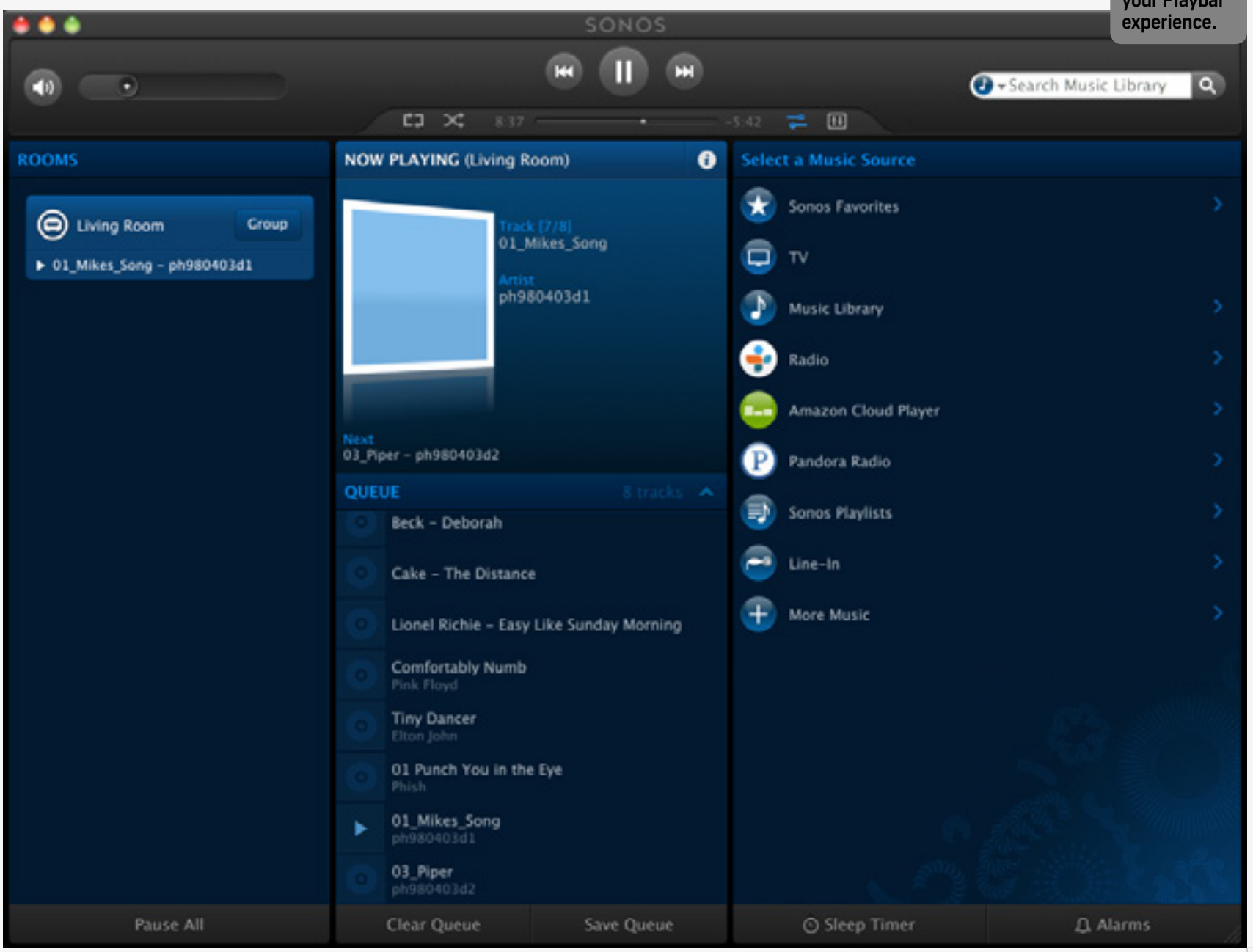
All of these features are available on the mobile apps, but are situated within menus, as opposed to being readily available. For example, if you want to tweak the bass and treble settings from the "now playing" screen on the mobile app, you have to tap through no less than five menus to get to the necessary

Despite the somewhat arcane nature of the Controller app, most folks won't have trouble getting comfy with it in a day or two.

controls. That's hardly an ideal UI; in fact, it quickly became a source of irritation for us. Every. Single. Time.

Suffice to say that the multi-pane interface of the desktop and tablet Controller apps is a better UI than the mobile version, as it makes more controls readily available and you can easily drag and drop songs into your queue. And, diving through the hierarchy of menus to get at all your sound sources feels more tolerable when you can do so while still being able to control your queue and what's playing. Despite the somewhat arcane nature of the Controller app, most folks won't have trouble getting comfy with it in a day or two.

It feels like Sonos already supports every music service under the sun, but new streaming



The Sonos Controller app manages your Playbar experience.

platforms seem to emerge on a weekly basis these days. That's why Sonos has its Sonos Labs feature, which allows you to test out new services as they become available. It's a little-talked-about feature that Sonos provides, and while there isn't always something new to try out, it is always a pleasant surprise to find a new music provider to explore.

SOUND

We've said it before, but it bears repeating: the Playbar sounds good when compared to its soundbar competition, particularly when playing music. It's a versatile speaker that coped well with any genre we threw at it, whether it was bass-heavy tracks from Jay Z's *The Black Album*, ripping guitar solos from *Phish: A Live One* or vocal anthems from Fun.'s *Some Nights*. Bass is tight, and vocals are delivered with clarity. Similarly, the Playbar shines during TV and movie audio playback, providing good simulated surround. All in all, it's a considerable improvement over any TV speakers we've ever heard.

Is it a replacement for your home stereo? No. Casual listeners will find no fault with the Playbar's sonic output, but if you're thinking this new Sonos can provide the depth of sound and stereo separation provided by a quality set of desktop speakers or a full component stereo, you'll be disappointed. The Playbar excels as a *soundbar*, providing a considerable upgrade over your TV's speakers and serving as a capable stereo substitute that provides a convenient way to listen to all of your music.

The Playbar's home theater performance is bolstered by a pair of unique features: Night Sound and Speech Enhancement. Night Sound is aimed at those who prefer late-night TV viewing, but don't want to wake the neighbors. Switch it on, and the dynamic range of the audio coming through the speakers is reduced as the volume is lowered. Soft sounds,

Connections include one Toslink and two Ethernet ports.

Overall, the array of nine drivers inside delivered a well-rounded, room-filling sonic experience.

like dialogue, become louder, while the louder sounds, like explosions, are softened. It works fine for movie watching, but we found the feature made talk shows sound a bit tinny. All told, we preferred the audio with Night Sound turned off.

Speech Enhancement, on the other hand, was a welcome addition to our TV watching. It works through a combination of lowering bass, adding gain to the center channel while lowering the gains of competing channels and boosting or reducing certain frequency ranges. In practice, the feature is brilliant, as it makes voices sound richer and clearer, particularly when watching the talking heads on the news or ESPN. It's not something you notice until it's switched off, when you realize that onscreen voices suddenly seem muted and muddy in comparison.

Overall, the array of nine drivers filled the room with sound, and despite Sonos' reluctance to talk about its products' wattages, the Playbar can really crank up the volume. We're talking wake-the-neighbors loud, and should you be so inclined, we detected no distortion during our (brief) time spent listening at max output. Needless to say, if you're looking for the Playbar to serve as the centerpiece for your next party you won't be disappointed.

The Playbar's minimal design makes it a match for most setups.

Despite the Playbar's well-rounded abilities, we'd be remiss not to mention just how much better the listening experience is when it's paired with a Sonos Sub. For all the Playbar does well, it lacks the low-end punch of a subwoofer, and we sometimes missed that capability, particularly when watching movies. Those six 8-centimeter drivers simply cannot deliver

the low, rumbling bass that is integral to a truly great theatrical experience. That's not to say the Playbar doesn't deliver good home theater audio on its own; it's just that having heard the soundbar in concert with the Sub, without one, it's a noticeably diminished experience. Naturally, home theater sound can be improved further by deploying a couple of Play:3s as satellite speakers to create a true 5.1 surround system, but adding the Sub is what really fills in the Playbar's sonic gaps.

WRAP-UP

Sonos' Playbar is an expertly constructed, excellent-sounding soundbar, but at $700 it poses a significant challenge; it's hardly an impulse buy. Pair it with a Sub for a truly great home theater audio experience, and that tally rises to $1,300 or $1,400 (not counting another $50 for a Sonos Bridge). An extravagant sum when compared to, say, Vizio's forthcoming highly regarded soundbar and wireless sub system.

Vizio's offering will stream music via Bluetooth, comes with a pair of satellite speakers and delivers near-Sonos quality sound for a mere $329. However, you don't get the all-in-one music streaming solution of the Sonos Controller, the Playbar's robust and well-engineered hardware, nor the elegant simplicity of setup that only Sonos provides. So, while the Playbar may not necessarily represent the best bang for your buck when it comes to home theater systems, it *does* offer a superior user experience — and if you have the financial means, you won't be disappointed by its performance. Put it this way: this is one review unit we wish we didn't have to send back. D

Michael Gorman is a Senior Associate Editor at Engadget, attorney, Hokie and 8-bit gaming enthusiast. He likes dogs, too.

BOTTOMLINE

SONOS PLAYBAR

$699

PROS

- Simple set up
- Great, room-filling sound for a soundbar
- Top-notch build quality

CONS

- Expensive
- Mobile app needs a better UI

BOTTOMLINE

Sonos' Playbar makes an excellent addition to your living room, but only well-heeled music lovers can afford one.

REVIEW

DELL LATITUDE 10

Can the Latitude 10 stand out from the Windows 8 hybrid crowd with its optional business-ready add-ons?
By Sarah Silbert

We've been making the grand tour of Windows 8 hybrids running low-powered Atom processors, and our latest stop is Dell's Latitude 10. While some similar systems, such as the ASUS VivoTab Smart and the Lenovo ThinkPad Tablet 2, focus on portable designs and long battery life, the Latitude 10 takes after that group of devices with "Smart" and "Pro" in their names.

Indeed, like the Surface Pro and Samsung ATIV Smart PC Pro, the Latitude 10 flaunts a large variety of corporate-friendly features, such as TPM, a productivity dock, a Wacom-certified

stylus and a Bluetooth keyboard. The entry-level configuration will set you back a tolerable $499, but adding on business essentials such as the dock and keyboard could soon have you looking at a price above the $1,000 threshold. Does the Latitude 10 work well enough to warrant the dough — and satisfy on-the-go professionals?

LOOK AND FEEL

"Inoffensive" is the word we'd use to describe the Latitude 10's design — and we imagine that's exactly what many corporate customers will want. Though we have no qualms with the straightforward, black-rectangle aesthetic, we do take issue with the extremely wide bezel surrounding the 1,366 x 768 display. This cheapens the device's feel, and it makes the 10.1-inch panel seem smaller.

At 1.45 pounds and 0.4 inch thick with a 30Wh battery, this isn't anywhere near the wispiest 10.1-incher around, but it does feel plenty sturdy in the hand. This is thanks to a reinforced magnesium-alloy frame, and the coating of Gorilla Glass doesn't hurt either. The back sports a soft-touch finish that makes for a comfortable grip — you shouldn't have to put this tablet's solid build to the test with any accidental drops.

By and large, button and port placement makes perfect sense on the Latitude 10 — and there is no shortage of connections on board. The physical Windows 8 Start button sits in its typical spot underneath the screen. Oddly, though, the button is slightly recessed rather than raised, and as a result it's a bit tricky to press. We had to apply more pressure than we're used to, and it was especially difficult to register a press when the tablet was angled upright in the bundled dock. The only other feature you'll notice on the front is the 2-megapixel, front-facing camera.

"Inoffensive" is the word we'd use to describe the Latitude 10's design — and we imagine that's exactly what many corporate customers will want.

The top edge of the Latitude 10 is home to a full-size SD card slot, the power button and a toggle for auto-rotate. The Enhanced Security model, which we got a chance to play with, includes a smart card reader along the top. The combo headphone / mic jack, USB 2.0 port and mini-HDMI connection sit on the right edge, while you'll find the volume rocker and Kensington lock slot on the left. Finally, the power connector and a micro-USB port line the bottom side. Turn the device over, and you'll find plenty going on. In addition to the 8-megapixel rear shooter with LED flash, the Dell logo and two small sets of speakers, the swappable 30Wh battery sits prominently on the

The Latitude 10 carries a swappable 30Wh battery.

backside, with a slide lock allowing for its removal. (A larger 60Wh battery was included with our review unit — more on that later.)

Our unit offers 3G connectivity, and the micro-SIM slot is located under the removable power pack. The battery takes up a good half of the surface, and while this interrupts the otherwise clean lines, the promise of longer battery life trumps any superficial design concerns. We had to wiggle both the two- and four-cell batteries loose when switching them out, as the latch system got stuck halfway when we tried to move it.

ETC.

The variety of configuration options for the Latitude 10 verges on confusing. Not only are there Essential, Standard and Enhanced Security models, but there are a slew of optional accessories as well. We checked out a Latitude 10 bundled with the productivity dock, a $100 add-on. This 1.8-pound peripheral adds to an already impressive number of ports, with four USB 2.0 connections, a headphone jack and a full-size HDMI for hooking up an external monitor. There's also a power connector for charging the tablet while it's docked.

It was easy to attach the Latitude 10 to the stand, but it felt rather wobbly; lifting up on the slate detached it from the base — and that was without applying much pressure. We imagine the dock won't move far from users' desks, though, and it offers a comfortable — though non-adjustable — viewing angle for both watching movies and composing emails and documents. Other accessories include a Bluetooth keyboard and mouse combo (ranging from $40 to $86, depending on which of the three bundle options you choose) and a $40 soft-touch case that can act as a stand. Our review unit also came with the $40 Dell KM632 keyboard and mouse package, along with the case.

Speaking of the Bluetooth keyboard and mouse, we had to force ourselves to use the device in tablet mode after enjoying this setup. You'll definitely want a set of hardware keys if you plan to do

The productivity dock offers a slew of ports and charging.

any real work, and both the chiclets and the mouse were responsive and comfortable for navigating Windows 8. That said, the Bluetooth keyboard is desktop-size, meaning the slate's 10.1-inch screen feels small in comparison. One other nitpick: the top of the mouse is removable, allowing you to insert the two AA batteries, and it comes off far too easily. We had to reattach it on several occasions during our hands-on time. Dell doesn't offer its own keyboard case; rather, it sells the Kensington KeyFolio Expert through its website.

DISPLAY, PEN INPUT AND SOUND

The Latitude 10's 10.1-inch screen sports a 1,366 x 768 resolution, which is par for the course when it comes to Atom-based tablets. More impressive than the pixel count is the 450-nit brightness rating; images really pop on this panel. When we watched Netflix, played a few games and surfed the web, all content appeared crisp, and colors looked accurate. Like the screens on the ASUS VivoTab Smart and the Lenovo ThinkPad Tablet 2, this display uses IPS technology, so you can expect wide viewing angles. We had no trouble making out a video from both the far left and right. Visibility would be even better if the display didn't have such a glossy finish, but that should only be an issue in settings with bright overhead lighting.

An active Wacom digitizer is available for about $34, and it's only compatible with the higher-end configurations of the Latitude 10. (The lower-end Essentials

When docked, only one viewing angle is available.

version will only work with a passive stylus.) We used the pen in programs such as Windows Journal, which includes handwriting recognition, and Paint. The stylus itself feels cheaply made; it doesn't provide as good of a grip as Samsung's S Pen, for instance. Still, it works well for selecting small objects on screen, and the capacitive display offers very good palm rejection. Only once or twice did the panel detect accidental input when we were writing with the digitizer. The Latitude 10 itself doesn't have a built-in slot for storing Wacom's device, but the soft-touch case that came with our review unit sports a penholder.

Audio doesn't get very loud on the Latitude 10. The two small stereo speakers are located on the back of the device, which means music and dialogue come through muffled when the tablet is on your desk (or your lap). Songs streamed via the Slacker app don't pack much punch at all, though — as we always say with slates — donning a pair of headphones allows for louder, slightly richer sound.

PERFORMANCE AND BATTERY LIFE

As we mentioned in our review of the ASUS VivoTab Smart, lower-powered

BENCHMARK	PCMARK7	3DMARK06	ATTO (TOP DISK SPEEDS)
DELL LATITUDE 10 (1.8GHZ INTEL ATOM Z2760, INTEL HD)	**1,437**	458	82 MB/S (READS); 35 MB/S (WRITES)
ASUS VIVOTAB SMART (1.8GHZ INTEL ATOM Z2760, INTEL HD)	1,400	372	**83 MB/S (READS); 35 MB/S (WRITES)**
LENOVO THINKPAD TABLET 2 (1.8GHZ INTEL ATOM Z2760, INTEL HD)	1,423	**460**	**83 MB/S (READS); 35 MB/S (WRITES)**
HP ENVY X2 (1.8GHZ INTEL ATOM Z2760, INTEL HD)	1,425	N/A	83 MB/S (READS); 34 MB/S (WRITES)
SAMSUNG ATIV SMART PC (1.8GHZ INTEL ATOM Z2760, INTEL HD)	N/A	374	82 MB/S (READS); 36 MB/S (WRITES)
ACER ICONIA W510 (1.8GHZ INTEL ATOM Z2760, INTEL HD)	1,297	N/A	81 MB/S (READS); 28 MB/S (WRITES)

Windows tablets are pretty much uniform when it comes to specs. Like that product and literally every other competing model we've tested, the Latitude 10 runs an Intel Atom Z2760 processor clocked at 1.8GHz, with 2GB of RAM and the Intel Graphics Media Accelerator. It's no surprise, then, that Dell's slate turns in virtually identical benchmark scores to its competitors. In ATTO, the Latitude 10 notched max read and write speeds of 82 MB/s and 35 MB/s, respectively, and a cold boot takes about 15 seconds.

Unsurprisingly for an Atom-powered device, the Latitude 10 wasn't able to run the 3DMark 11 graphics benchmark, which requires DirectX 11 support. That's a good indicator of what kind of gaming performance to expect — you'll be fine playing *Angry Birds*, *Solitaire* and the like, but serious titles are out of the question. We experienced a few glitches, such as app crashes and force quits throughout our hands-on time with the Latitude 10, but these moments were few and far between. Switching between apps didn't cause the system to stutter, and we never found ourselves tapping our fingers waiting for programs to load.

When we ran our battery test, which involves running a locally stored video on loop with WiFi on and brightness set to 65 percent, the Latitude's 30Wh battery lasted nine hours and three minutes. That compares favorably to other Atom-powered machines, such as the Acer Iconia W510 (eight hours and 19 minutes) and the HP Envy x2 (seven hours and 53 minutes). While that's fairly average for an Atom-powered Windows 8 tablet, it trumps them all when you add in the optional 60Wh

WINDOWS 8 SYSTEMS	BATTERY LIFE
DELL LATITUDE 10	9:03 / 16:01 (EXTENDED BATTERY)
ASUS VIVOTAB SMART	7:30
THINKPAD TABLET 2	**10:27**
ACER ICONIA W510	8:19 (TABLET ONLY) / 14:17 (WITH THE DOCK)
HP ENVY X2	7:53 (TABLET ONLY) / 12:30 (WITH THE DOCK)
ACER ICONIA W700	7:13
SAMSUNG ATIV SMART PC (AT&T)	7:04 (WIFI ONLY) / 6:43 (LTE)

power pack: with that attached, we got a jaw-dropping 16 hours of runtime.

CAMERA

The Latitude 10 sports a 2-megapixel, 720p, front-facing camera for video chats along with an 8-megapixel rear shooter with flash. When we took a few selfies in our brightly lit office, our images appeared grainy with a strong yellowish overcast. This is sadly the status quo for most tablet webcams, but moving to an area with natural light should help if you have to take a Skype meeting in a pinch.

Our samples from the 8-megapixel rear camera show fairly accurate colors and, for the most part, look quite sharp. Some pictures taken in shadowy settings look darker than they should, and images taken with flash unsurprisingly look very washed out. Camera options are fairly limited: there are controls for brightness and contrast, along with a toggle for auto or manual exposure. Sample video footage of Union Square in New York looked crisp and didn't exhibit much jerkiness. In short: if you insist on bringing a tablet along to document your adventures, the Latitude 10's cameras will certainly suffice.

SOFTWARE AND WARRANTY

Dell bolsters the Latitude 10's cred as a business device with several security-minded features, including TPM and support for Computrace. Keep in mind

The 8MP rear camera takes sharp images with decent coloring.

that this software isn't available on the Essentials version of the device. The company also offers data encryption for protecting files.

We've seen more offensive pre-loads than the software selection on the Latitude 10. Out of the box, the tablet includes Dell Backup and Recover, a trial of Microsoft Office and Skype. You'll also find the standard Windows 8 apps, such as Bing, Maps and Weather. Our 3G-equipped configuration of the Latitude 10 also comes with the AT&T AllAccess utility for managing your data plan. Dell offers a standard one-year limited hardware warranty.

CONFIGURATION OPTIONS AND THE COMPETITION

There are several available configurations of the Latitude 10, all with the same 1.8GHz Intel Z2760 processor and 2GB of RAM. On the lower end is the $499 so-called Essentials configuration, which runs Windows 8 and offers a 32GB SSD. For $80 more ($579 total), you can step up to a 64GB Essentials model. Next up the rung is the $649 Latitude 10, which gets you Windows 8 Pro, a 64GB SSD, a swappable battery, active stylus support and security features such as TPM. A $779, 64GB model includes those same features and adds a smart card reader and fingerprint reader, and it also supports mobile broadband. You could also spring for Dell's $849 Mobility bundle, which includes the productivity dock and 3G connectivity.

Some of the most useful features don't feel tailor-made for a portable lifestyle, and how useful are peripherals if they can't travel anywhere with you?

We took a look at two configurations of the Latitude 10. First up was the Mobility bundle, which Dell supplemented with several add-ons. With the four-cell swappable battery, Bluetooth keyboard and mouse, soft-touch case and Wacom digitizer, that option comes out to $1,019. (Note that Dell often runs promotions, so you may see slightly different prices.) Due to a faulty battery, though, Dell sent us another model to test: the Enhanced Security version with a fingerprint reader, smart card reader, swappable four-cell battery and the productivity dock. That configuration — without peripherals such as the Bluetooth keyboard and mouse — costs about $934. If you're going to go for the Latitude 10, we'd recommend shelling out for the full trappings, since you'll need a keyboard — and likely an external monitor — to get real work done. That said, those extras bring the price into Ultrabook territory, and you won't

Some of the peripherals make the hybrid less mobile.

be getting Core i5-level performance with Dell's hybrid machine.

As always, we recommend surveying the field before committing to a product, and you have quite a few other options if the Latitude 10 piques your interest. When it comes to a good value, it's hard to beat the ASUS VivoTab Smart, which gets you 64GB of storage for $499. We like the 1.28-pound tablet's design — with a polycarbonate back shell — and relatively high-performing camera, but battery life isn't best in class, and there's no pen support. Acer's $550 Iconia W510 is another relatively inexpensive offering, and it has good battery performance and an IPS display in its favor. The downside is a cramped and unattractive keyboard dock — and that

brings the price up to $750.

If you want to wield a stylus, check out the Lenovo ThinkPad Tablet 2. This may just be our favorite low-powered Windows 8 hybrid, thanks to a comfortable keyboard and impressive longevity. Pen input does come at a slight premium, though: it's $649 for a 64GB, stylus-equipped model. Lenovo also has the more consumer-friendly IdeaTab Lynx (review coming soon). There's also the Samsung ATIV Smart PC Pro, which runs a full-fledged Core i5 CPU and includes an S Pen, but that will set you back $1,200.

WRAP-UP

There are plenty of things to like about the Dell Latitude 10, in no small part due to the vast number of optional accessories that boost the device's productivity chops. Even without the swappable four-cell battery, this machine offers good longevity, and its bright IPS display stands out among other panels in its class.

That's not to say this product is without its flaws, though; some of the most useful features, such as the productivity dock and the optional keyboard, don't feel tailor-made for a portable lifestyle, and how useful are peripherals if they can't travel anywhere with you? The price is also pretty steep when you factor in all the extras that make this system so corporate-friendly. If your pockets can handle it, splashing out for the highest-end configuration with all the bells and whistles will net you a solid product. Those who need to stay south of $1,000, though, should consider the ThinkPad Tablet 2 and ASUS VivoTab Smart instead. D

Sarah is Reviews Editor, a wannabe tap dancer and a closet film critic.

BOTTOMLINE

DELL LATITUDE 10

$499+

PROS

- Long battery life
- Bright IPS display
- Lots of business-friendly security features, accessories
- Useful productivity dock with plenty of ports

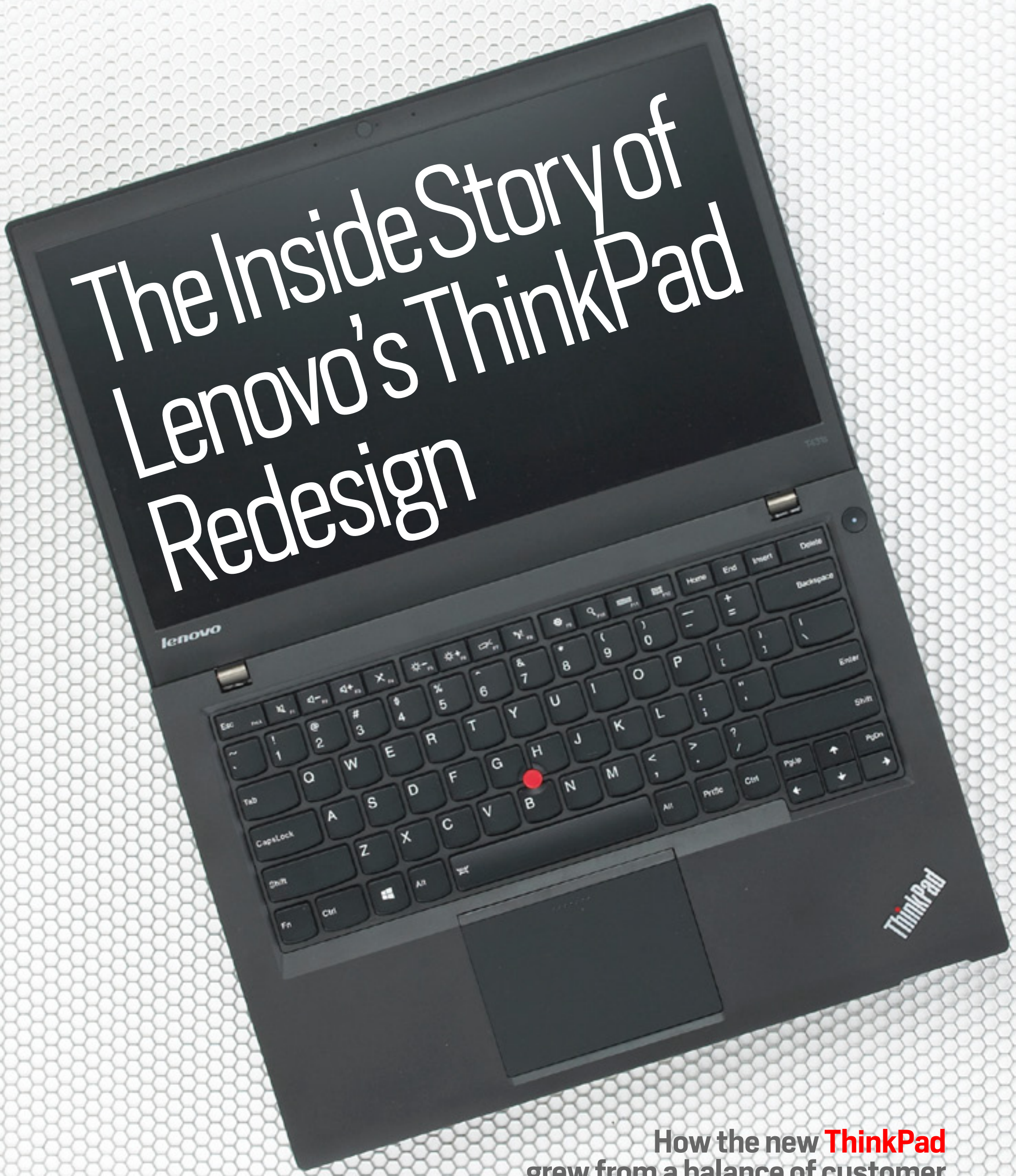
CONS

- Some design quirks
- Expensive with peripherals
- No portable keyboard

BOTTOMLINE

The Dell Latitude 10 is a solid Windows 8 tablet with stellar battery life, but it quickly becomes expensive — and bulky — when you add on the corporate-friendly peripherals.

The Inside Story of Lenovo's ThinkPad Redesign



How the new ThinkPad grew from a balance of customer preference, tradition and a desire for forward-facing design

By Darren Murph

PHOTOGRAPHS BY WILL LIPMAN

"WHEN YOU TALK to end users about ports, they'll tell you how much they need them. They'll talk about the vast number of USB devices that they have. It's easy to hear that and determine that you need five or more ports based on what these people report. When you watch these people work, however, and you're more overt in your methods — you rarely see that happening.

"Sometimes, there's a conflict between what someone reports they need and what they require."

So begins the backstory of the latest ThinkPad overhaul as told by Corinna Proctor, the senior research manager at Lenovo's User Research Center. Clearly versed in the art of separating whimsical wishes from bona fide requirements, she spoke to me in a phone interview alongside two of her colleagues in the run-up to the unveiling of the redesigned ThinkPad T431s Ultrabook. The machine itself is still very much a ThinkPad — it's black, understated and tough as nails — but those who appreciate the evolution of technology will no doubt recognize some changes. Changes that began as mere notions some 18 months ago.

Rethinking

With just a glance, the new ThinkPad looks far more modern. The reality is that older ThinkPad bodies never really felt as if they were designed for the current generation, but the company has abolished needless hooks, latches and bumpers, while also ridding the interior of the convoluted multi-button control mechanism. The widened trackpad now dominates the palm rest, and the protruding ThinkLight has been replaced with backlit keys. Oh, and as for the LCD bezel? It's the thinnest to ever grace a T-series ThinkPad. The revamping of the T431s is merely a taste of what's to come from Lenovo's most storied laptop line. Redesigning a hugely

The revamping of the T431s is merely a taste of what's to come from Lenovo's most storied laptop line.

iconic (and frankly, loved) laptop line is something that must be handled with delicate gloves; change too much, and your loyalists flee, but change too little, and your rivals maintain the edge in design.

As part of a planned revamping, Lenovo tapped dozens of departments across the world to put new ThinkPad prototypes into the hands of average people — people from all walks of life and strewn across a variety of cultures. Then, they watched and logged the feedback for a total of 18 months, chipping away and retooling the final product.

The speaker grilles that flanked the keyboard on the old model have been hidden away from view on the T431s.

In the quest for simplicity, the bezel size has been reduced and Lenovo has dispensed with the "sweater catcher" clips and rubber "hot dog" bumpers.

The company didn't invest more than a year of research to polish up a single machine — it's putting those findings to work across the entire range. While the machine that debuted at Engadget Expand will be the first to showcase the fruits of that labor when it ships in April at a $949 starting point, I'm told the siblings and cousins that follow will boast similar marks.

I asked Proctor — along with Jason Parrish, manager of Lenovo's ThinkPad strategy and planning, and Tom Butler, director of worldwide ThinkPad product marketing, why the team felt it was necessary to redesign proactively. Making no bones about it, each agreed that the ThinkPad line isn't a guaranteed success just because it has been

around for a score. But just scoping out the competition and trying their best to hop ahead based on conjecture wasn't going to cut it this go 'round.

"The nature of this research — perhaps unlike some other research where you check a box for everything you need on a notebook — was much more about understanding users and their behavior," said Proctor. "From there, we sought to telegraph those observations into design."

While thinner, the newer T431s model retains an Ethernet port, staying flexible for users' varied online connectivity needs.

Just north of 100 people were intimately involved in refashioning the ThinkPad line for the modern era, with varying research studies taking place in the United States, China, Germany, France, India, Mexico, Russia, Brazil and Japan. Instead of just plopping a few paid participants down and asking them to fill out a form detailing their

ideal laptop, the company "shadowed" individuals to see how they actually *used* a machine. Only a small segment of each group were genuine ThinkPad loyalists — the rest were early adopters of consumer technology, as well as those ardently opposed to selecting a ThinkPad as their primary machine. After all, one's biggest opponent often provides the most truthful revelations.

Painting a picture of what it was like inside one of Lenovo's mobile R&D labs, Parrish described a "wall" of ThinkPads, glazed in every color and shade imaginable. Exteriors doused in the glossiest of blacks to the carbonest of fibers were on display, with a panel of laypeople asked to provide raw feedback on which version they'd consider tossing in their briefcases.

Parrish described a familiar refrain when folks waltzed by one particular machine — a blissfully red ThinkPad. The initial response? Unanimously positive. Around 10 seconds later — practically without fail — each critic changed their tone. "This is pretty, but I couldn't see myself actually owning it and using it on a daily basis." Such is the mentality of an adult stifling the lustful intuitions of a younger soul. What would clients think of such a flashy lid? Would it send the wrong message? At the conclusion of the group's research, a gently tweaked coat of fingerprint-resistant black was settled upon. People love style, but professionals require class, and that's the delicate balance that Lenovo's trying to strike going forward.

Practically Speaking

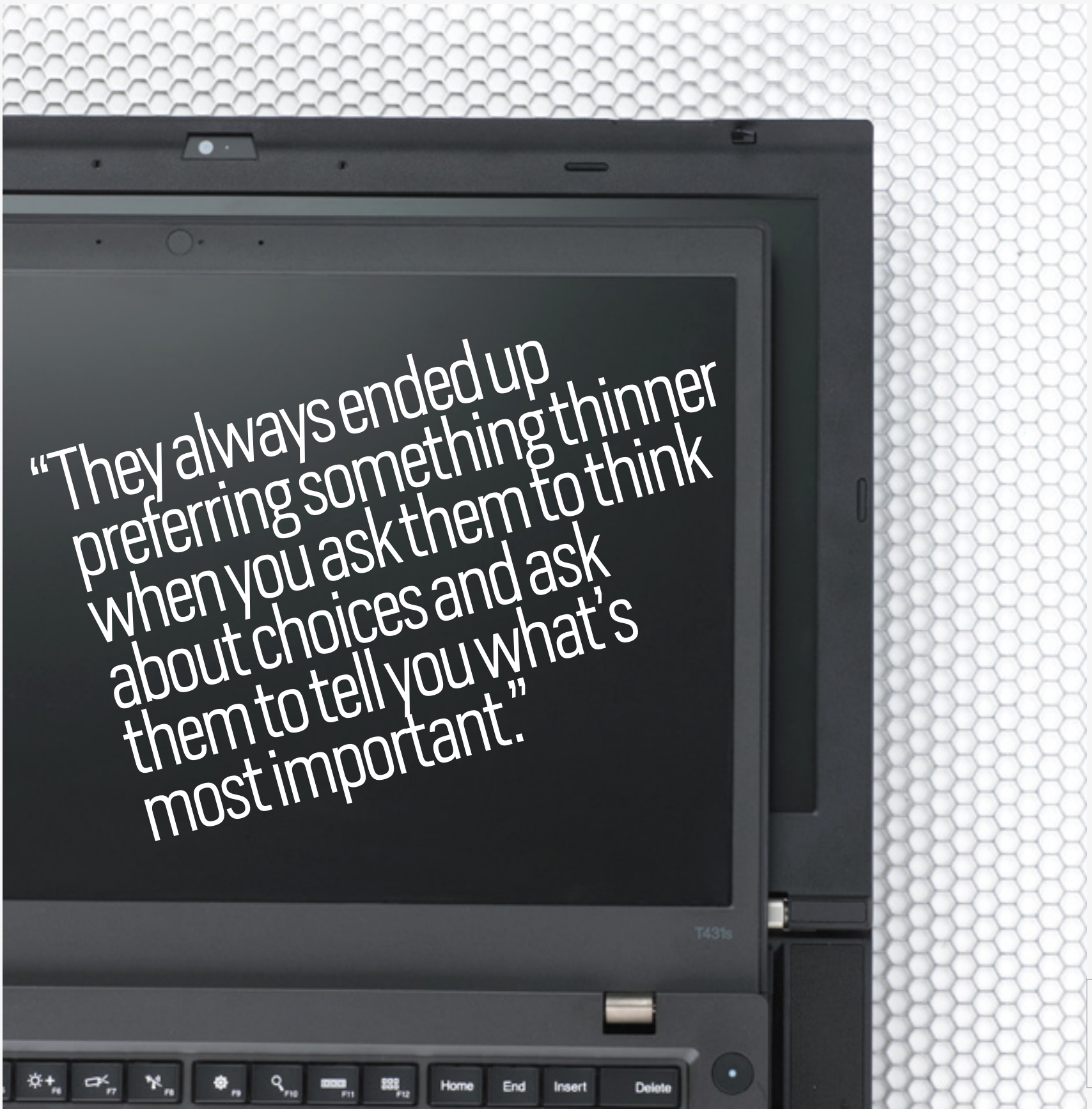
In discussing the myriad choices made over the life of the redesign project, I pressed the group to reveal what items the subjects simply wouldn't budge on; the things that were prioritized highly without fail.

"No one who doesn't work in the computer industry sits around and thinks about whether they'd be willing to trade off thickness for dropping a given component," confessed Proctor. "But, when you talk to people about these topics, they'll quickly rationalize needs. They'll suggest to themselves that they can just use an external optical drive

if they need to use a DVD. They always ended up preferring something thinner when you ask them to think about choices and ask them to tell you what's most important."

Reiterating the point, Proctor added: "When we talk to people, they'll say things like, 'Well, as long as [a laptop] has around four to five hours of battery life, that's good enough — I'm never away from an outlet for much longer than that.'" She did, however, admit that select responders vocalized "very high needs" and resorted to other methods in order to stay powered up for longer periods, but it was quite clear to me that we aren't yet living in a world where the majority of OEMs are feeling pressure to

The redesigned hinge on the T431s opens up to a full 180 degrees, providing more angle options and the ability to lay the notebook out flat.



radically innovate on the battery life front.

According to Proctor, "battery life, mobility and a laptop's thin-and-light nature remain top of mind." I offered something of a counterpoint, noting that many laptop users that I've spoken with have confessed that they'd be willing to buy something marginally thicker than the ludicrously thin laptops shipping today if it just had all-day battery life. And, in a separate world, many iPad loyalists are spending $150-plus to buy horrendously bulky keyboard cases that make their (far less utilitarian) tablet much, much thicker than, say, an 11-inch ultraportable.

Proctor's response? "We actually addressed that very topic in our study, and the feedback that we received was essentially the following: 'If it's *my* choice to add a thick and bulky case, that's fine. If the device arrives thick and bulky, that's not fine.'"

She also noted that the sheer sexiness of laptops today is being perceived far differently than even one to two generations ago in the ThinkPad universe.

"From an aesthetic standpoint, the 'kitchen sink' ap-

The new ThinkPad has done away with the DVD drive in favor of a slimmer and lighter form factor.

"People today prioritize the visual aesthetic more so than ever before—it's hugely important."

proach results in an unattractive box," Proctor said. "People today prioritize the visual aesthetic more so than ever before — it's hugely important."

Aesthetics are so important, in fact, that Lenovo has finally flipped the exterior lid logo so that it's properly situated when viewing it as a bystander. Parrish noted the logo's orientation was "a hot-button topic internally for years," and finally, feedback from customers persuaded them to pull a 180. Of course, some other laptop maker made a similar decision on its PowerBook line way back when, and that one turned out just fine.

Nuts and Bolts

Aside from the macro-level view, I also asked Lenovo's team to talk about the specific changes that were made. Naturally, carving out a thinner, lighter and longer-lasting creature was a given, but what about the details? Why does the VGA port remain in 2013? Why isn't the entire bottom plate supportive of inductive charging? Why are those infamous LCD latch hooks gone? And, perhaps most

The T431s retains a VGA port due to popular demand, remaining compatible with old-school conference room environments.

Lenovo did affirm to me that there are some inductive charging tests that are ongoing within its labs.

importantly, why did Lenovo choose today to join the giant, no-button trackpad bandwagon?

Naturally, the ThinkPad line is foremost a business-centric machine. There's some consumer crossover — perhaps more today than in decades prior — but alienating enterprise users in favor of hipster demands isn't about to happen. *That*, in a sentence, is why there's still an Ethernet port and a VGA socket on the T431s. Anyone who has ever stepped foot inside a boardroom will recognize that business projectors default to VGA, but Proctor did confess that Lenovo as a whole is planning for a world where VGA connectors aren't necessary in 2015. In other words, don't bank on the *next* next-generation ThinkPad to boast such a superannuated port.

Without giving too much detail, Lenovo did affirm to me that there *are* some inductive charging tests that are ongoing within its labs. The reality, however, is that the power requirements for modern machines and the power abilities of modern charging pads create too wide a chasm for the company to reasonably address. Parrish and Butler both suggested Lenovo would be more than happy to issue laptops with wireless charging once the technology matures to a point that it would be more than an "expensive and unsightly add-on," further proving the proverbial chicken-and-egg problem is apt to hamper the technology's advancement. If you can't convince an OEM like Lenovo to take a chance with inductive charging in its current state, where's the funding going to come from to perfect it?

Among other subtle changes in the new ThinkPad line, the team decided to do away with the rubber "hot dogs" (as they're internally dubbed) and "sweater catchers" (again, a Lenovo designation) on the screen. Instead, the bezel has contracted and a redesigned hinge is in place, preventing the next wave of Lenovo laptops from needing physical hooks to remain closed. The reason? "It's just sleeker," said Parrish. Indeed, when gazing at the T431s in comparison to the T430s, everything just looks less busy. Fewer bumps here, a few less extrusions there — reaching back to Proctor's point; these are things that matter to-

day, but were in an entirely different sector of the priority chart just a few years ago.

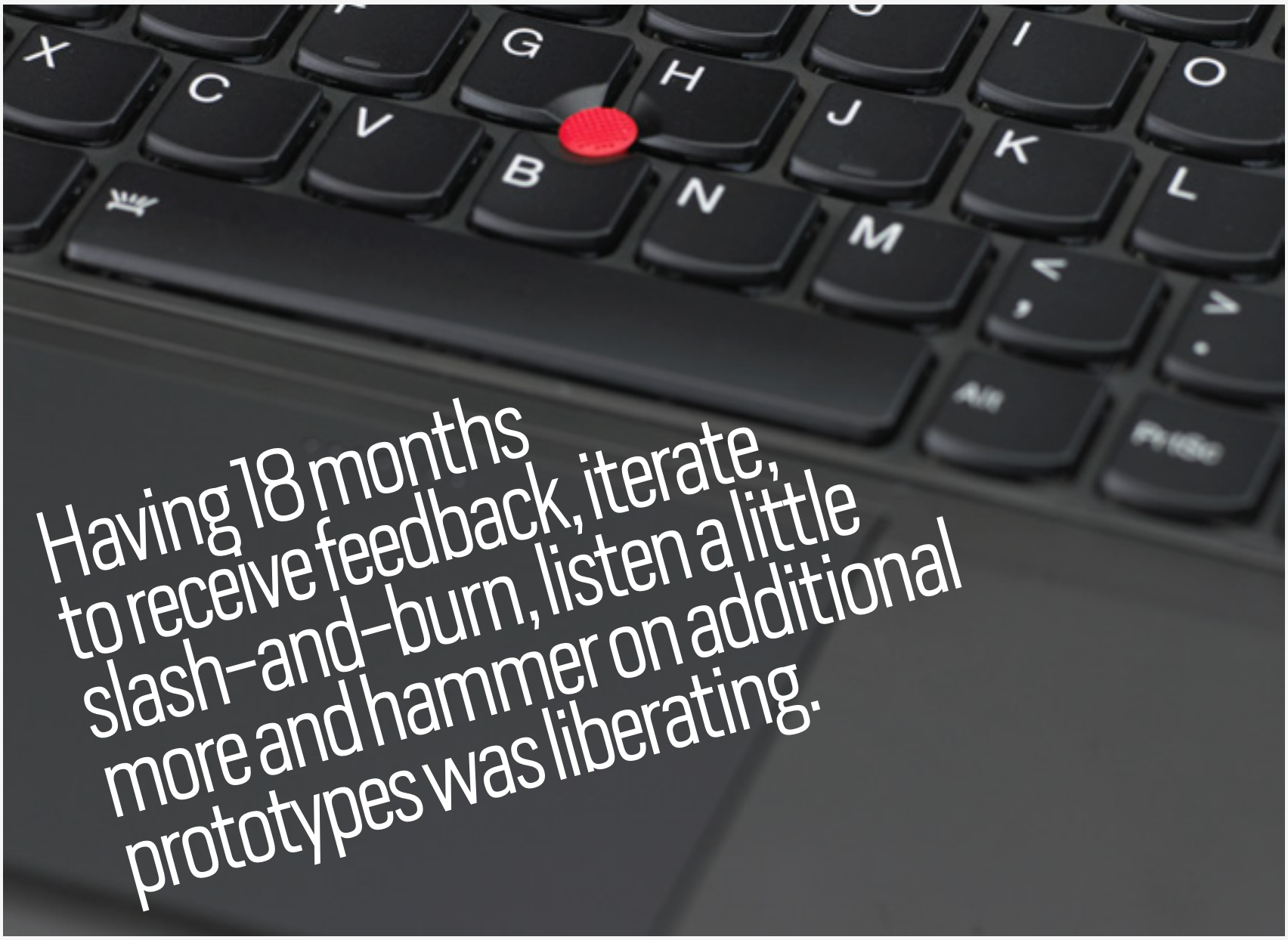
ThinkPad loyalists will almost certainly direct their attention to the new trackpad when first laying eyes on the T431s. Or, perhaps, they'll spot the notable (and very deliberate) omission of the physical buttons that have historically sat just beneath and above a far smaller tracking surface. According to Parrish, the overall concept was to "simplify the appearance of two pointing devices in ThinkPad notebook design and maximize touchpad area — while optimizing it for interaction with Windows 8." A tricky approach, no doubt, given that a solid swath of ThinkPad users have no doubt grown used to mousing with the crimson-clad, centrally located nub. The end result is a five-button clickpad, as it was detailed to me, which supports 20 gestures and handles northerly clicks for those who refuse to switch from using the aforementioned pointing stick.

In fact, it took Lenovo two solid *years* working lockstep with Synaptics to create a driver stack that would ensure optimal performance in this unique scenario — a laborious process that I'm personally thrilled was undertaken given the woeful performance from most Windows-based trackpads. Moreover, in yet another nod to today's changing expectations, the top row of Function keys now defaults to handling multimedia duties; old schoolers who still need to hammer on F5 for any given reason can use a thoughtfully included Fn lock feature.

Not Stopping Here

Proctor had a palpable sense of calm in her voice when confessing that Lenovo started this redesign process ahead of an internal schedule. According to her, having 18 months to receive feedback, iterate, slash-and-burn, listen a little more and hammer on additional prototypes was liberating.

"It's a little like editing a book — you never feel like you're done," she said. "But, of course, there are realities like schedules and roadmaps. We were very fortunate in this project to have started it early, so we didn't have to



Lenovo has reduced the clutter for the T431s' controls and optimized them for Windows 8. The result is a larger trackpad area that offers five clickable areas.

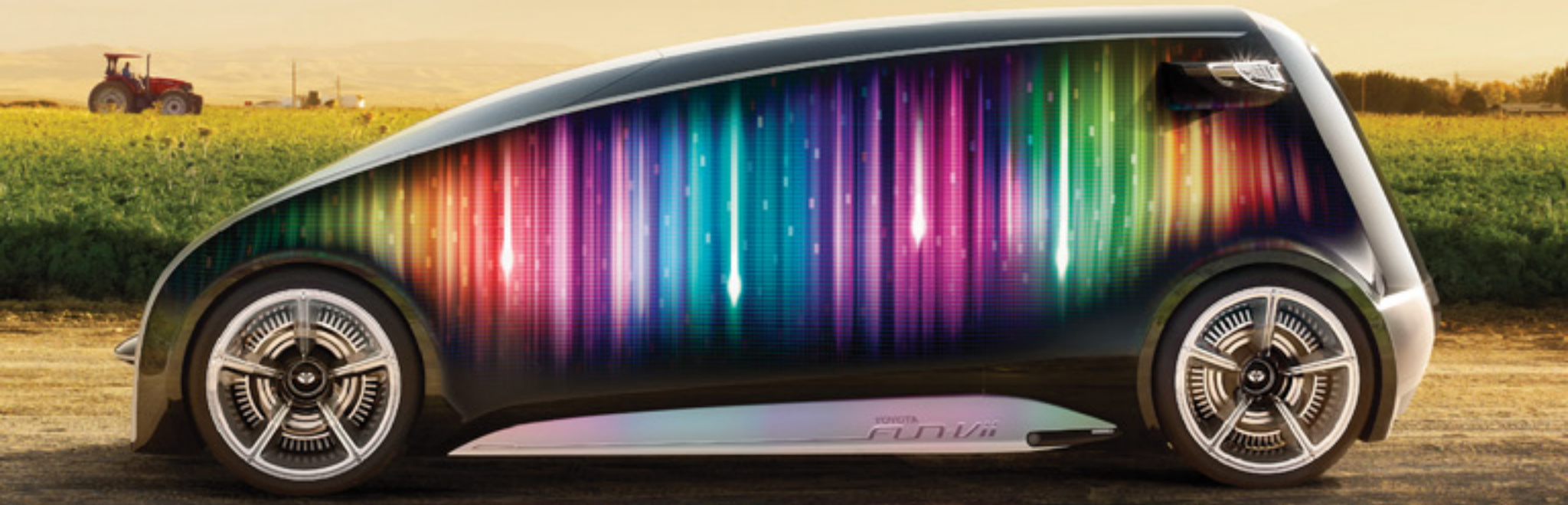
rush through it. Along the way, we kept a close eye on how things were progressing — if something wasn't up to par, we kept going."

Indeed, there's always some place to go. Parrish mentioned that the industrial designers were pushing hard to shove newer 7mm HDDs into the T431s, but things didn't quite line up. "We wanted to get that thinner hard drive technology implemented, but what we found from a scheduling perspective — along with testing it to meet overall durability standards — [is] it just didn't pan out." The hypothesized space savings? "It'd be around 1mm thinner on the front edge," said Parrish.

Next time, right guys? D

Darren holds the Guinness World Record for being the most prolific professional blogger on planet Earth. He's also an argonaut.

Let's Go Places



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A NEW EYE IN THE SKY

VISUALIZED

PHOTOGRAPH BY CHRIS GUNN / NASA

A NEW EYE IN THE SKY

VISUALIZED

What better place for NASA to connect with some space cadets than this year's SXSW festival in Austin, Texas? It had a full-size model of the James Webb Space Telescope on display, which it has used as a key prop in promoting the project since 2007. The actual telescope is currently set to launch in 2018 aboard the ESA's Ariane 5 ECA and will head to an orbit about 1 million miles from Earth. Taking over for the aging Hubble Space Telescope, its powerful, infrared-optimized eyes will search for early formations created after the Big Bang.

PHOTOGRAPH BY CHRIS GUNN / NASA

AMOS GAYNES

PHOTOGRAPH COURTESY OF MOOG MUSIC

THE MOOG PRODUCT DEVELOPMENT SPECIALIST recalls learning to program in BASIC and shares his love for BB10.

What gadget do you depend on most?
On a daily basis, probably the (mid-2010) MacBook Pro on which I'm replying to this question.

Which do you look back upon most fondly?
My parents bought a beige Apple //e computer when I was about 5 or 6 years old; I played my first games and learned to program in BASIC on that machine.

Which company does the most to push the industry?
It's hard to say. In a broad sense I'd say that all of the companies making evermore powerful, lower-powered processors and microcontrollers are really enabling the rest of the gadget industry to expand and innovate. Names like Silicon Labs, Atmel and Cypress may not be as well-known as Intel or AMD, let alone Apple or Microsoft, but the competitions and collaborations between companies like these create a fertile climate for innovation.

What is your operating system of choice?
I spend about half my workday on Windows 7 and half on OS X; my playtime is about 50/50 between these two as well. I genuinely like unique aspects of both, and harbor specific grudges against both. I've always home-built PCs due to the price/performance ratio. I'm a fan of open OS distribution in the abstract, but never tried running a Linux box at home because I've always relied on Windows audio

software and / or hardware in my home studio.

What are your favorite gadget names?
I like the modern trend of simple real words, like Ableton Push or Google Glass. I think this is a better direction to look in for gadget names, rather than the clumsy portmanteau words or meaningless neologisms we've had so many of in the last couple of decades.

What are your least favorite?
ThinkPad would definitely fall into the category of clumsy portmanteau words; I've always thought that name was awkward.

The beige-clad Apple //e computer was released in 1983.

PHOTOGRAPH BY BILBY / WIKIMEDIA.ORG

"I like the modern trend of simple real words, like Ableton Push or Google Glass. I think this is a better direction to look in for gadget names."

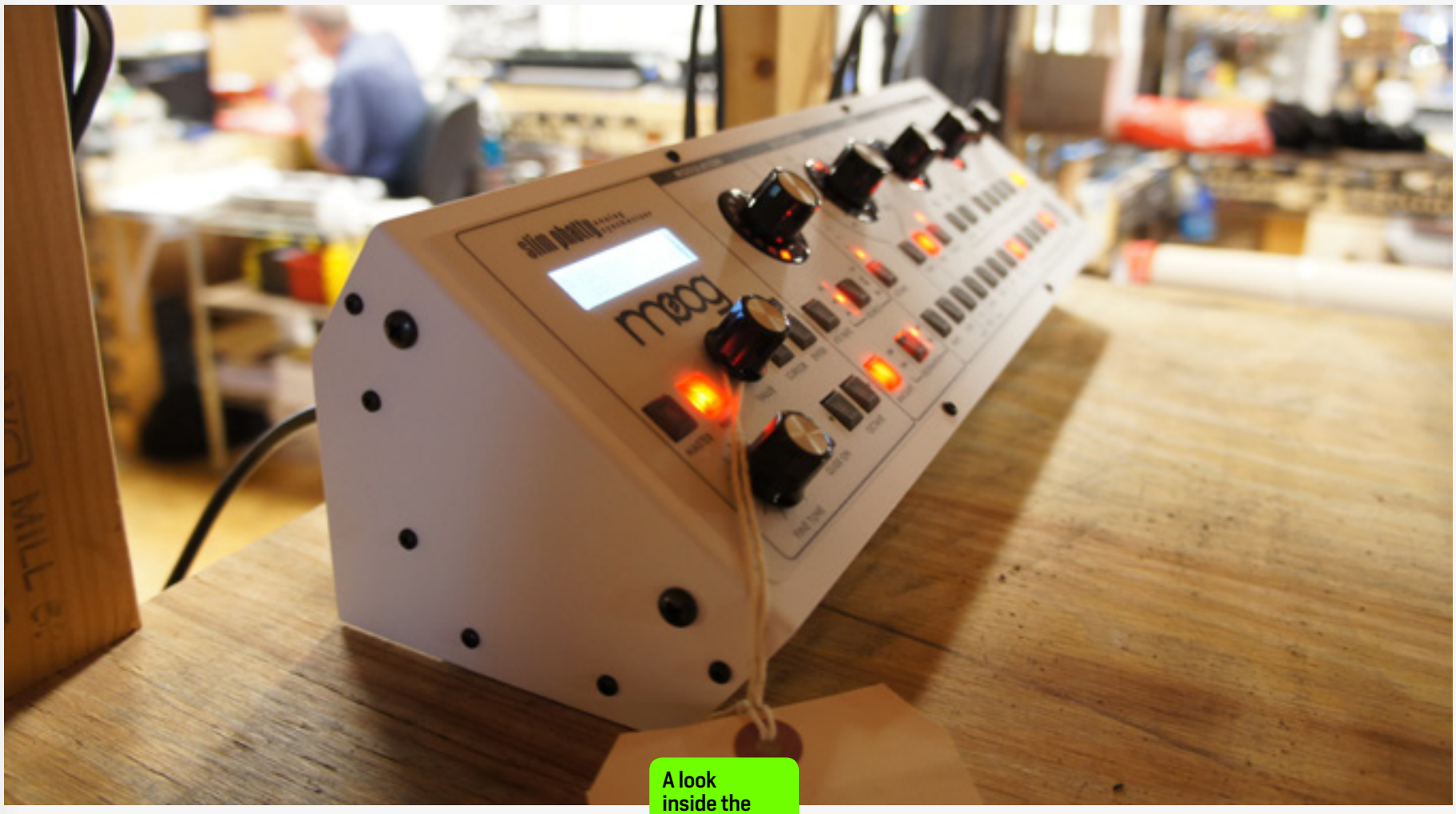
Which app do you depend on most?
Definitely e-readers… Stanza on iOS and MobiPocket Reader on my BlackBerry both get a lot of use.

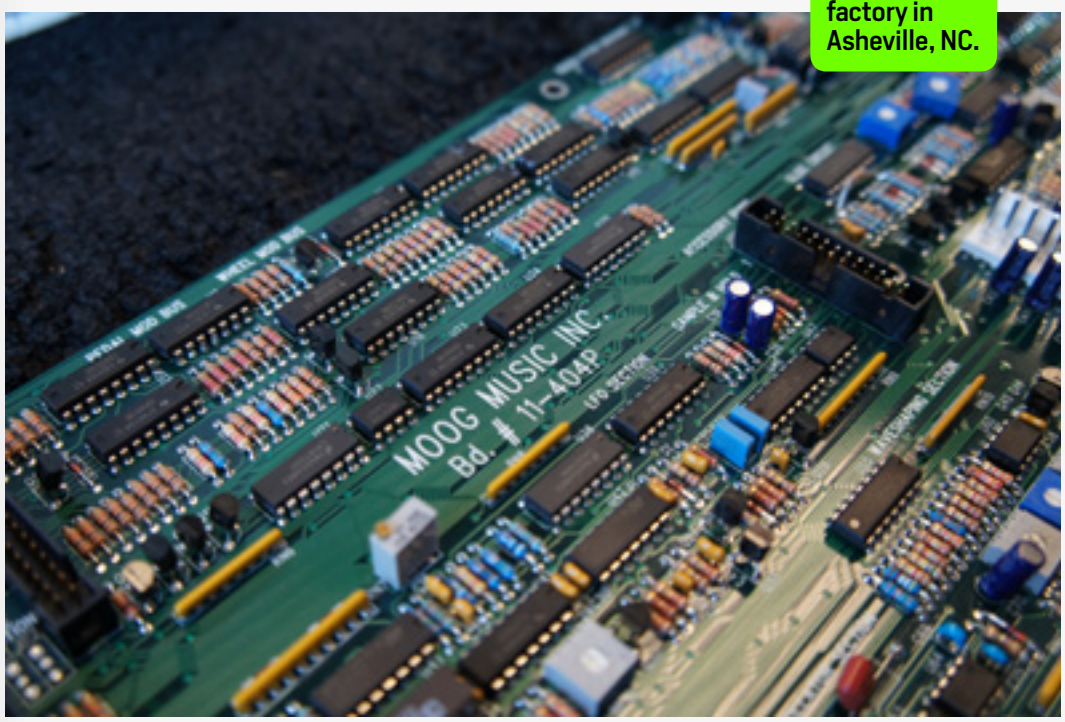
What traits do you most deplore in a smartphone?
Autocorrect. I'd rather have an "autosuggest" where the default action was to assume I meant what I typed, and I'd have to go out of my way to accept the suggested "spelling."

Which do you most admire?
I'm just old enough, I guess, that really accurate voice-activated search still seems pretty fantastic to me. When it works.

What is your idea of the perfect device?
I think the perfect device would be one that embodied its function intuitively, so that its operation was self-evident. Barring that, it at least should never fight or contradict a reasonable user's attempts to figure it out.

What is your earliest gadget memory?
Probably the 1970s Hewlett-Packard programmable calculator at my grandfather's house. It had something like a vacuum fluorescent display and a slot for reading strips of magnetic tape that you fed through by hand.





A look inside the Moog Music factory in Asheville, NC.

PHOTOGRAPHS BY BILLY STEELE

What technological advancement do you most admire?
Tough call. I like electricity, and written language is really good. So are general-purpose computing, amplified sound and, of course, sound synthesis.

Which do you most despise?
Auto-tuned vocals.

What fault are you most tolerant of in a gadget?
Low battery life — I don't mind being plugged in most of the time.

Which are you most intolerant of?
User-surliness; not letting me change a setting that I know exists.

When has your smartphone been of the most help?
Real-time mapping while walking in unfamiliar cities is awesome.

What device do you covet most?
As a developer, I've spent some time with a BlackBerry 10 Dev

Alpha, and I really want one for myself now.

If you could change one thing about your phone what would it be?
Aside from changing it to a BB10 :) if I could change anything, I'd probably move away from the handheld design altogether and more towards a wearable / heads-up display. I've always been a cyberpunk at heart so naturally I like that evolution.

"... I go off the grid for transformational arts festivals deep in the mountains of western North Carolina."

What does being connected mean to you?
Constant access to "the Oracle" — answers to questions from the trivial to the arcane, always on tap. Idle wondering is now obsolete (or the domain of the terminally incurious).

When are you least likely to reply to an email?
I used to email from my phone a lot, but I found that my quality of life improved when I imposed at least that small limitation, to do email only on a laptop or larger machine. So for now anyway, if I'm out on foot or away from a computer, I actually won't be replying to that email until later. I'm still guilty of too much business email on the weekends.

When did you last disconnect?
I'm pretty constantly online, usually in multiple ways simultaneously. All of my home media is interconnected; all the devices are on the network and the TV is just a video switcher in between them. There were a few years in the '90s where I maintained a 24/7 dial-up internet connection on my home phone line, which was relatively uncommon at the time. I'm only 100 percent disconnected for a couple of weeks out of the year, when I go off the grid for transformational arts festivals deep in the mountains of western North Carolina. D

IN REAL LIFE is an ongoing feature where we talk about the gadgets, apps and toys we're using in real life.

BING TRANSLATOR FOR WINDOWS PHONE 8

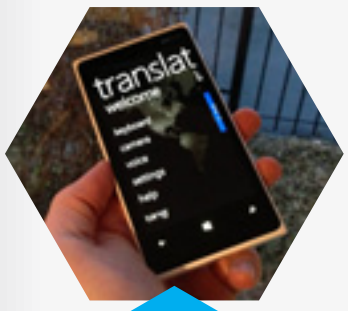
ioSafe N2

Mophie Juice Pack Air

On my way to cover CeBIT in Germany, I'd resolved to brush up on my high school language skills with a refresher course of Michel Thomas Method MP3s. Unfortunately, it was only on the plane that I discovered that the files were corrupted, sending me into a panic as I worried about getting by in Hannover. Fortunately, I'd brought along an unlocked Lumia 920 to use as my local handset, and while it never properly worked with Vodafone's local network, it did have an ace in its sleeve: Bing's Translator app.

Without a doubt, it's one of Microsoft finest achievements. All told, it combines a simple English-to-German dictionary, audio pronunciation guides, Lens-style camera translation and, best of all, offline dictionaries. In the week that I was there, it only flaked out on me once, and proved to be a fantastic travel companion. While an electronic phrasebook is never a substitute for a working knowledge of the local dialect, I was able to supplement my own knowledge to the point where I didn't need to worry about those broken MP3s.

— Dan Cooper



Bing Translator for Windows Phone 8

Mophie Juice Pack Air

IOSAFE N2

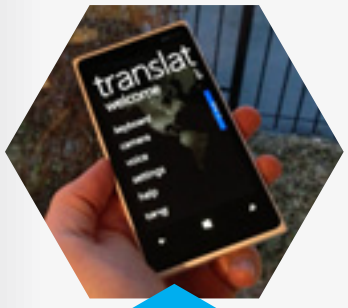
Like so many other outfits, ioSafe took to a crowdfunding platform in order to get some momentum behind its latest piece of kit. The company has a short, but unmistakable history of crafting near-indestructible hard drives, and its N2 isn't veering from that path. The Indiegogo-funded beast holds a pair of HDDs — our test unit had a pair of 1TB drives, but big spenders and devout archivists can opt for a duo of 4TB units. The drive is aimed at small businesses that simply need a reliable, network-accessible storage device, but this guy one-ups most of the competition by being able to withstand the impossible.

I didn't dunk it underwater for three days, nor did I toss it in a nearby bonfire, but I did bang on it, drop it and spill a fair amount of coffee on it in order to see what it was truly made of. Perhaps unsurprisingly, it's still ticking. For those in need of an NAS that'll survive just about anything, ioSafe's N2 is a solid (ahem) option. Two things, though: one, it's not cheap, and it's also not light. At $600 without any HDDs within, you best be equipped to write this thing off as a proper business expense. And at 23 pounds, you'll need a study table to sit it on. I was continually amazed at just how *dense* this thing feels — if you're looking to buy a technology product that doubles as a fitness accessory, look no further.

Transfers across a wired network were predictable, with reads and writes usually landing between 50 MB/s and 80 MB/s. When sending files via WiFi, however, it transferred around 10 times slower. In other words, you're best off opting for a wired connection if you tend to pass along massive .zip files.

— Darren Murph

MOPHIE JUICE PACK AIR



Bing Translator for Windows Phone 8

ioSafe N2

For as long as I've owned iPhones, carrying a cable and a wall plug has been necessary to keep them charged for a whole day. Mophie battery cases always intrigued me, but I was never fully convinced. Normally, I'll use a $50 Elecom mobile USB battery, a small brick with a USB connection that holds four AAs and can fully recharge my iPhone 5.

Well, I've tested Mophie's iPhone 5 Juice Pack Air ($100) for a few weeks, and have been pleased by both its recharging chops and its design. The Air has a 1,700mAh battery and is finished with a grippy soft-touch coating. Further, it's adorned with a beveled band, covering all the phone's buttons with plastic ones and the Air has kept my iPhone safe through multiple drops onto the sidewalk.

I've been able to revive my battery from a 1 percent charge to a fully juiced battery, with an ample amount of power left over for another quick blast or two. On a normal day, I can leave the charging cable at home without fretting, and that includes LTE tethering. It's a thick case, but I've had no issues slipping it in and out of the front pockets on my skinny jeans — it's not much bigger than a cased 3GS. I also prefer the extended bottom because it routes the iPhone's speaker forward, and protects my straight-jacked headphone cables from nasty bends.

The four-LED battery checker 'round back works smoothly and the on / off switch never accidentally budges either. My only gripe is that while the micro-USB port charges both the phone and the case, it doesn't support wired syncing with a computer. Overall, the iPhone 5 Juice Pack Air is a delight to use. I'll still be keeping the Elecom ready, as the Mophie has more potential to leave me powerless in desperate situations. With the two combined, however, I've found a harmonious system that doesn't have me constantly planning my next charge.

— Joe Pollicino

The week that was in 140 characters or less

Slowpokes in Transit, A Case of the Blues and Soft Drink Inspiration

@BakaDW
Metal Gear Solid 5: The Phantom Pain? What? WANT

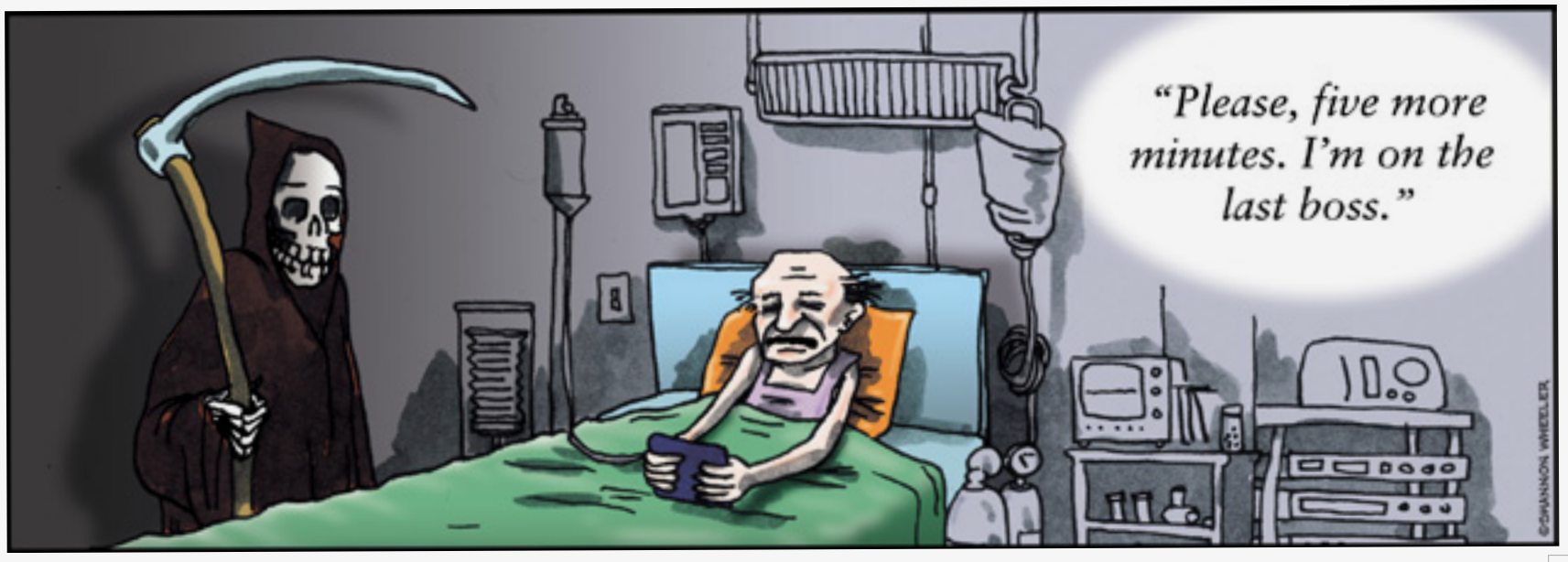
@RSGAT
Google Maps "transit" directions from Bpt Metro North to Beardsley Zoo: "Walk to Connecticut's Beardsley Zoo (about 48 mins / 2.4 mi)"

@AM_Jake
Kia is about to unveil a Sportage inspired by comic book character Wonder Woman. Yes, really. #NYIAS

@Mr_Trout
this t-mo uncarrier thing is a classic sprite move, right?

@Xander_P
After decades of windows crashing being called the "blue screen of death" Microsoft has decided to call their most recent project "blue"

THE STRIP | BY SHANNON WHEELER

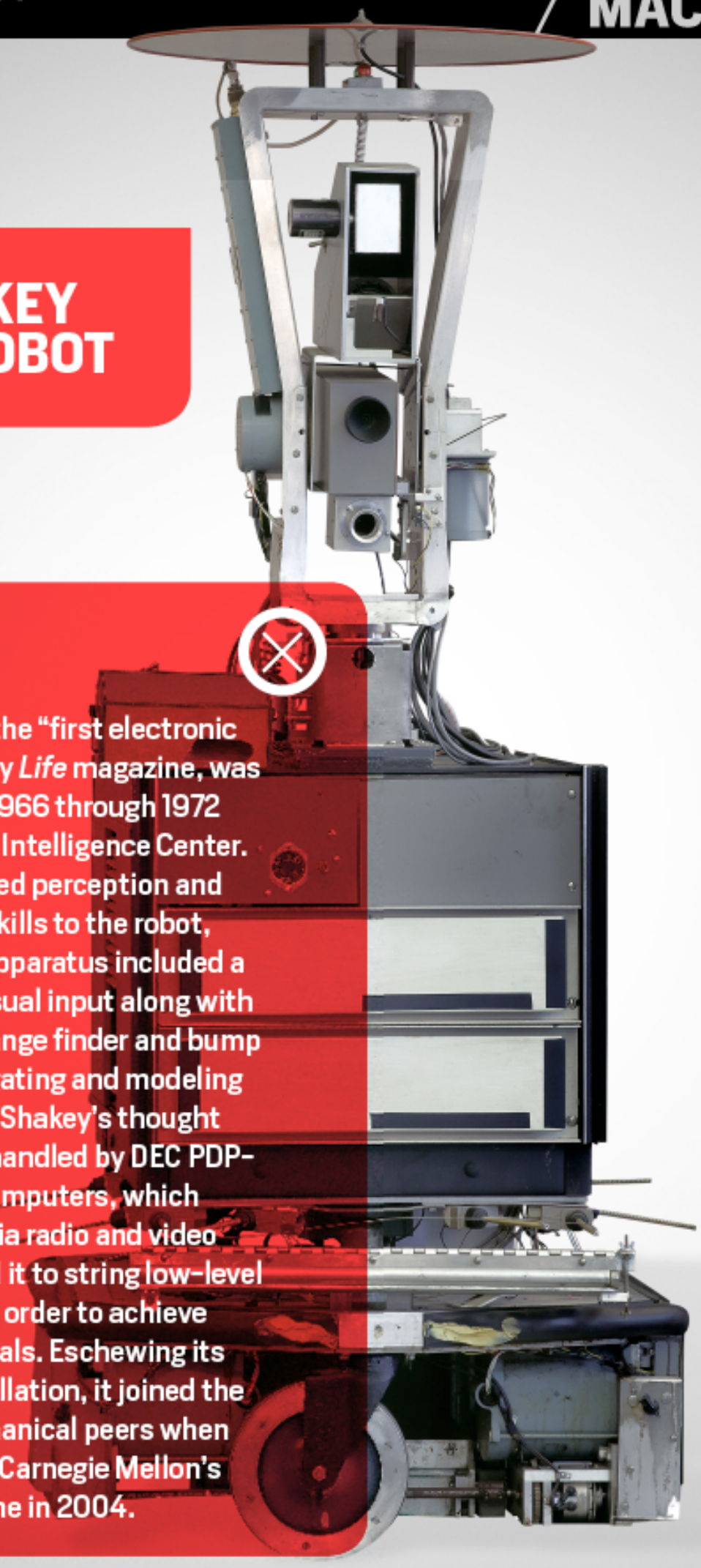


WHAT IS THIS?

TOUCH TO FIND OUT

PHOTOGRAPH BY MARK RICHARDS. COURTESY OF THE COMPUTER HISTORY MUSEUM

SHAKEY THE ROBOT



Shakey, dubbed the "first electronic person" in 1970 by *Life* magazine, was developed from 1966 through 1972 at SRI's Artificial Intelligence Center. The project applied perception and route-planning skills to the robot, whose sensory apparatus included a TV camera for visual input along with a triangulating range finder and bump sensors for navigating and modeling its environment. Shakey's thought processes were handled by DEC PDP-10 and PDP-15 computers, which communicated via radio and video links and allowed it to string low-level tasks together in order to achieve more complex goals. Eschewing its human-like appellation, it joined the ranks of its mechanical peers when it was elected to Carnegie Mellon's Robot Hall of Fame in 2004.

PHOTOGRAPH BY MARK RICHARDS. COURTESY OF THE COMPUTER HISTORY MUSEUM

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